

1 / 56

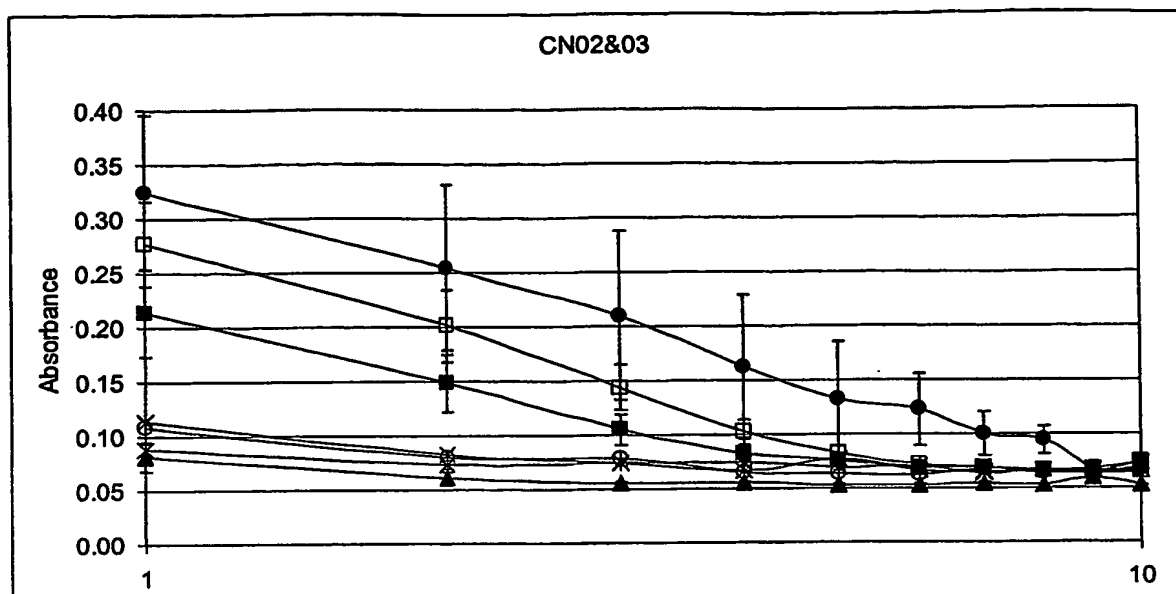


Figure 1

n=3-6 +/- SEM

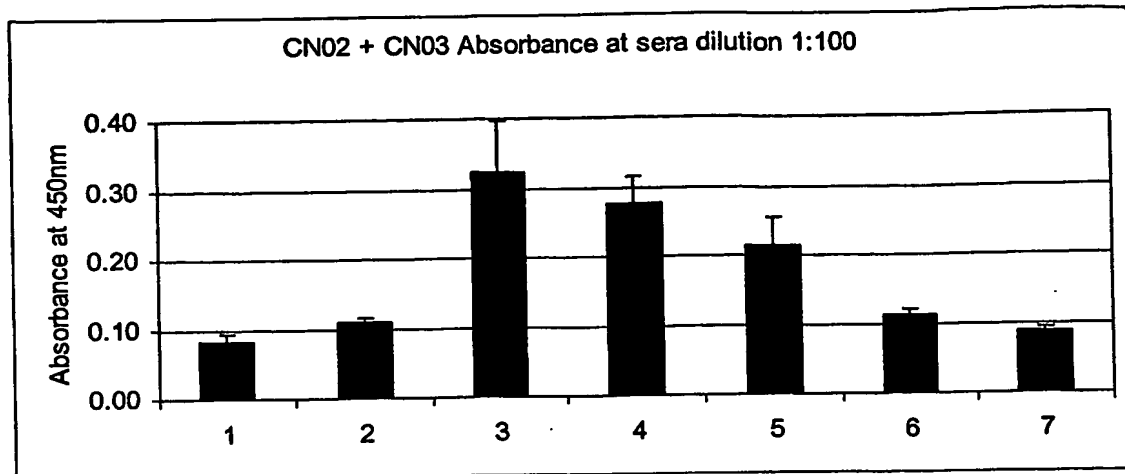
PRIME

1. ▲ DNA.HBs i.m.
2. ○ Nil
3. ● DNA.HBs i.m.
4. □ DNA.HBs i.m.
5. ■ DNA.HBs i.m.
6. × DNA.HBs i.m.
7. * Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

2 / 56

**Figure 2**

n=3-6 +/- SEM

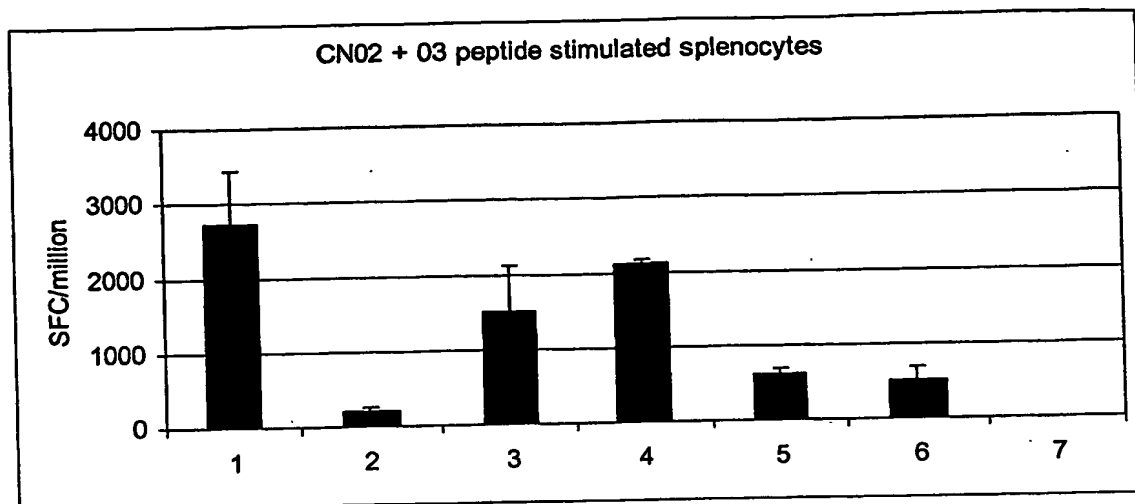
PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

3 / 56

**Figure 3**

n=3-6 +/- SEM

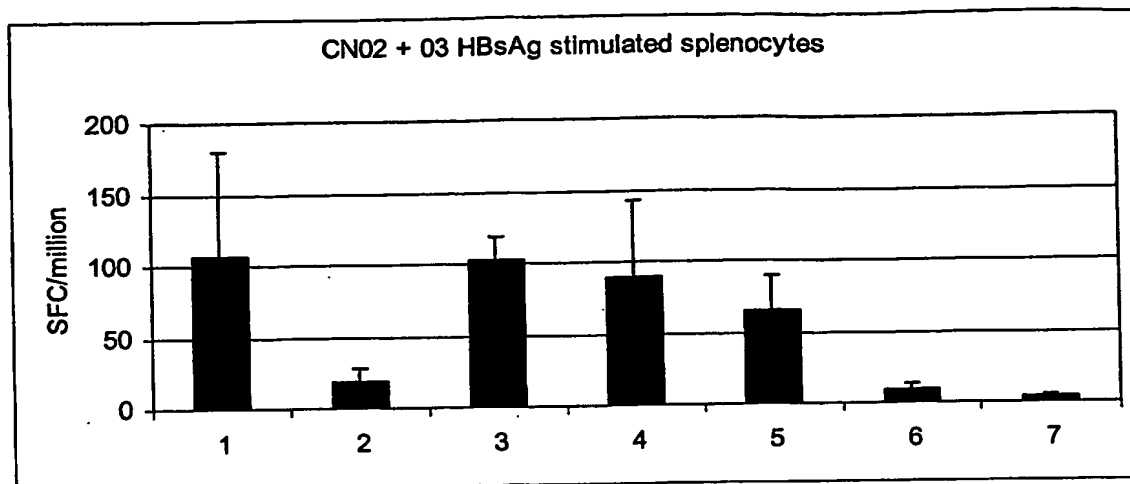
PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

4 / 56

**Figure 4**

n=3-6 +/- SEM

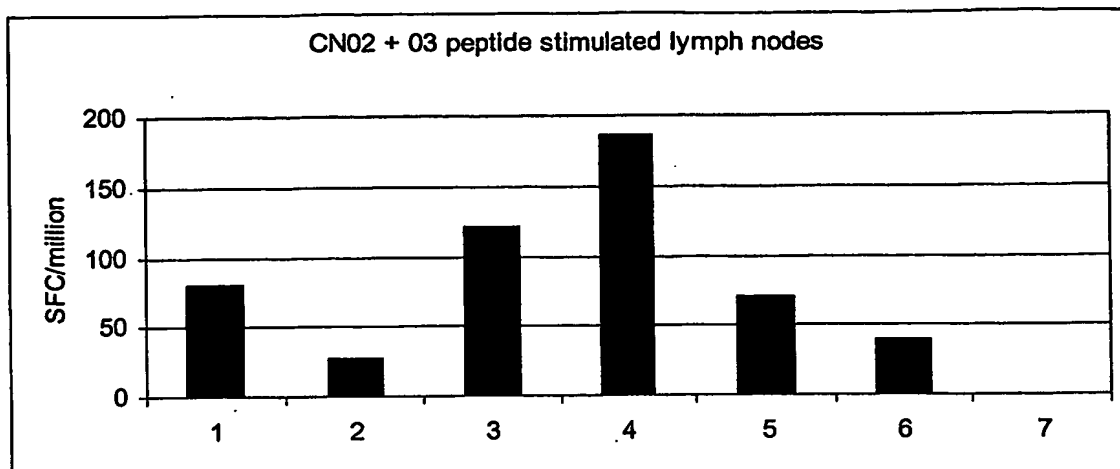
PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

5 / 56

**Figure 5**

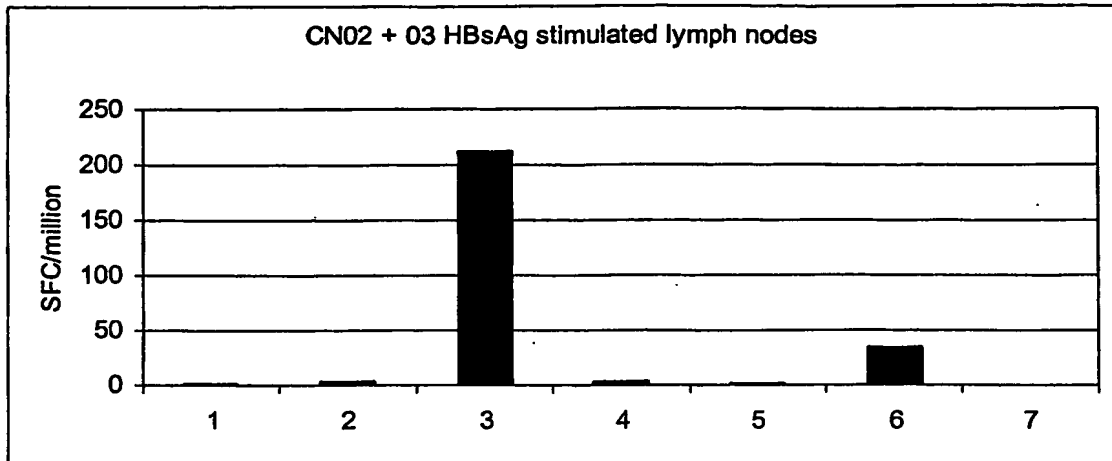
n= cells from 3-6 animals pooled

PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

**Figure 6**

n= cells from 3-6 animals pooled

PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. Naïve

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.

7 / 56

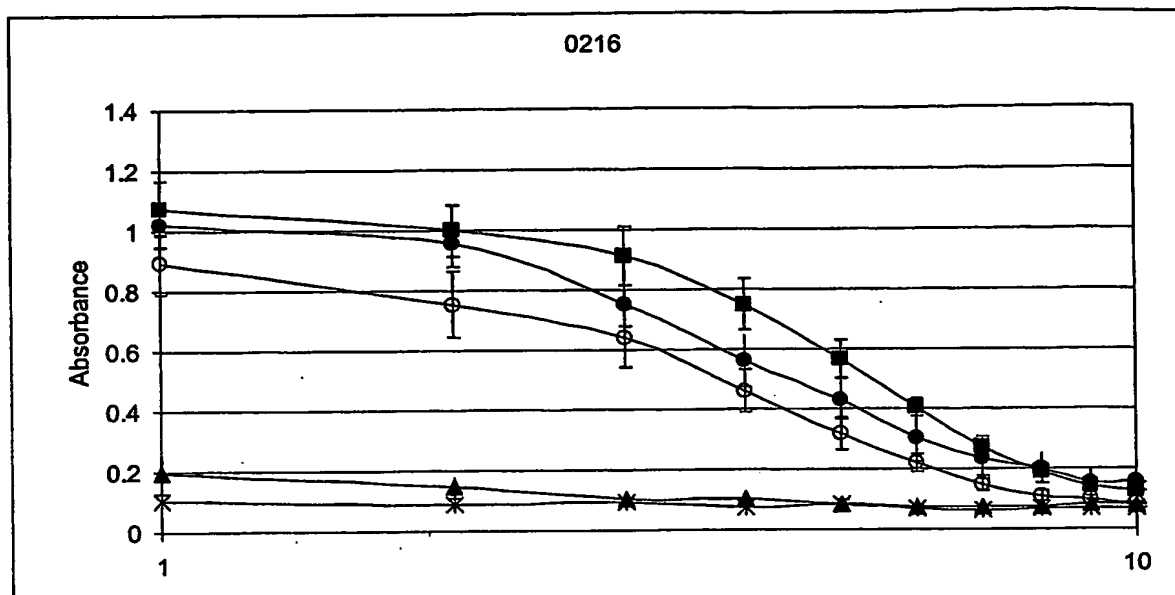


Figure 7

n=5 +/- SEM

PRIME

- ▲ DNA.HBs
- DNA.HBs i.m. Engerix s.c.
- DNA.HBs i.m. Engerix s.c.
- DNA.HBs i.m. Engerix s.c.
- * Naive

BOOST

- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.

8 / 56

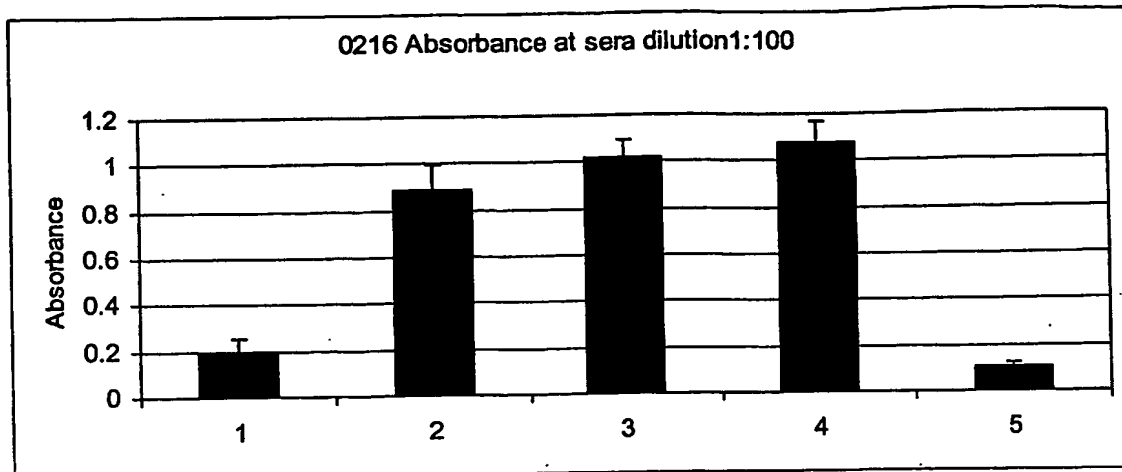


Figure 8

n=5 +/- SEM

PRIME

- 1.DNA.HBs
- 2.DNA.HBs i.m. Engerix s.c.
3. DNA.HBs i.m. Engerix s.c.
4. DNA.HBs i.m. Engerix s.c.
5. Naive

BOOST

- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.

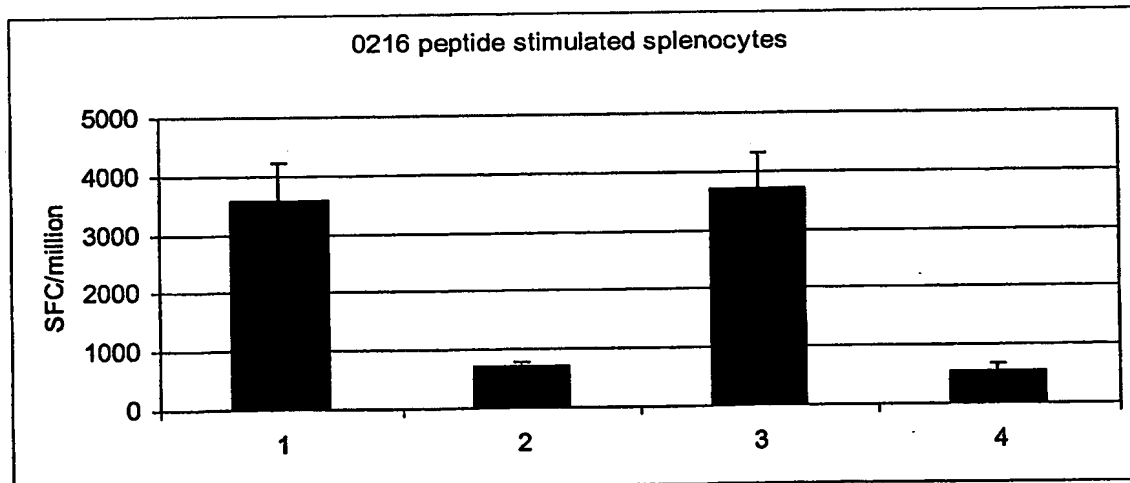


Figure 9

n=5 +/- SEM

PRIME

- 1.DNA.HBs
- 2.DNA.HBs i.m. Engerix s.c.
3. DNA.HBs i.m. Engerix s.c.
4. DNA.HBs i.m. Engerix s.c.

BOOST

- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.

9 / 56

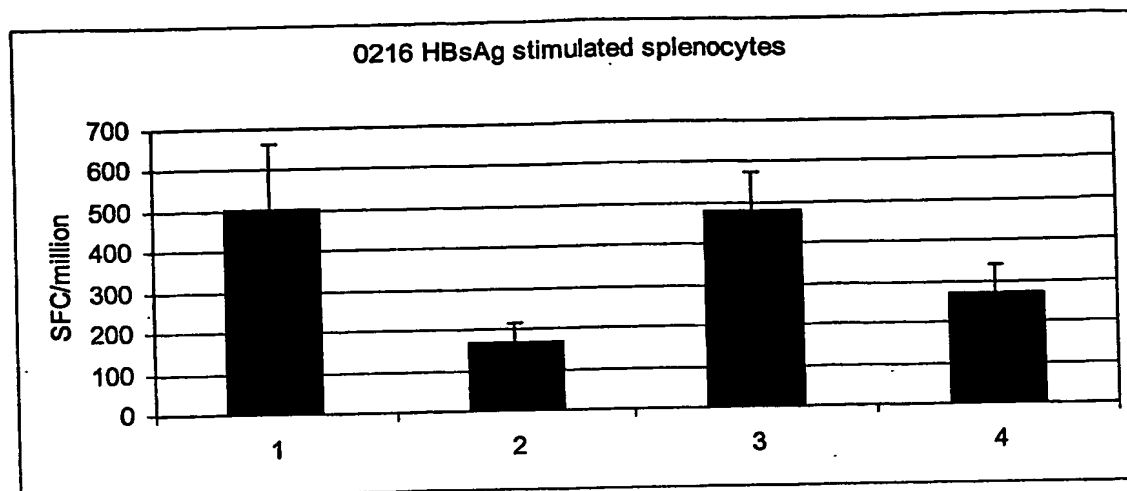


Figure 10

n=5 +/- SEM

PRIME

- 1.DNA.HBs
- 2.DNA.HBs i.m. Engerix s.c.
3. DNA.HBs i.m. Engerix s.c.
4. DNA.HBs i.m. Engerix s.c.

BOOST

- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.

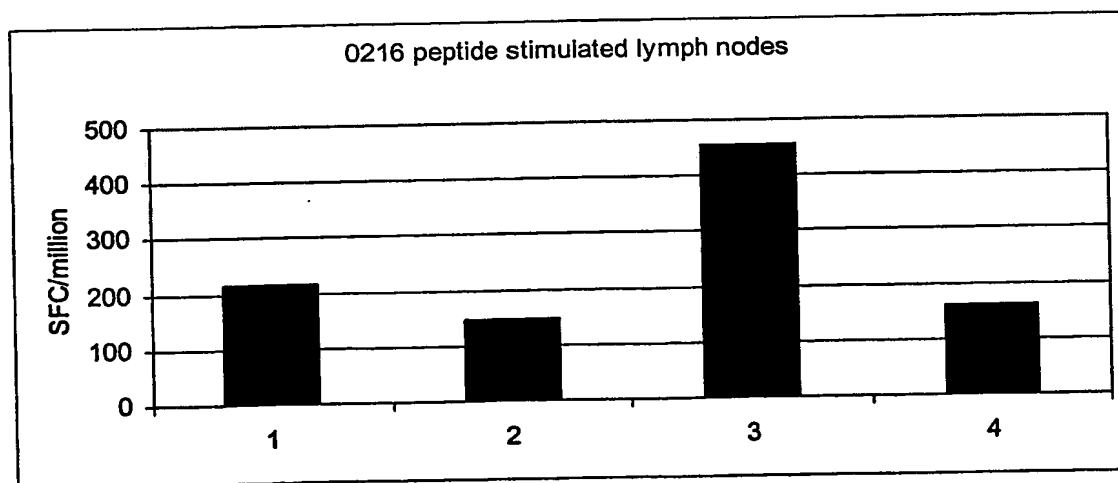


Figure 11

n= cells from 5 animals pooled

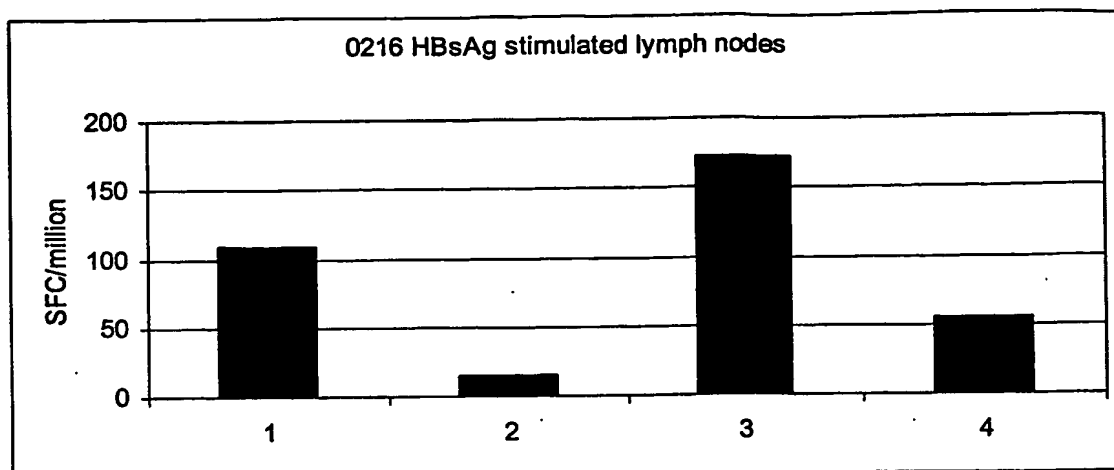
PRIME

- 1.DNA.HBs
- 2.DNA.HBs i.m. Engerix s.c.
3. DNA.HBs i.m. Engerix s.c.
4. DNA.HBs i.m. Engerix s.c.

BOOST

- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.

10 / 56

**Figure 12**

n= cells from 5 animals pooled

PRIME

- 1.DNA.HBs
- 2.DNA.HBs i.m. Engerix s.c.
3. DNA.HBs i.m. Engerix s.c.
4. DNA.HBs i.m. Engerix s.c.

BOOST

- MVA.HBs i.d.
MVA.HBs s.c. Engerix s.c.
MVA.HBs i.d. Engerix s.c.
MVA.lacZ s.c. Engerix s.c.

11 / 56

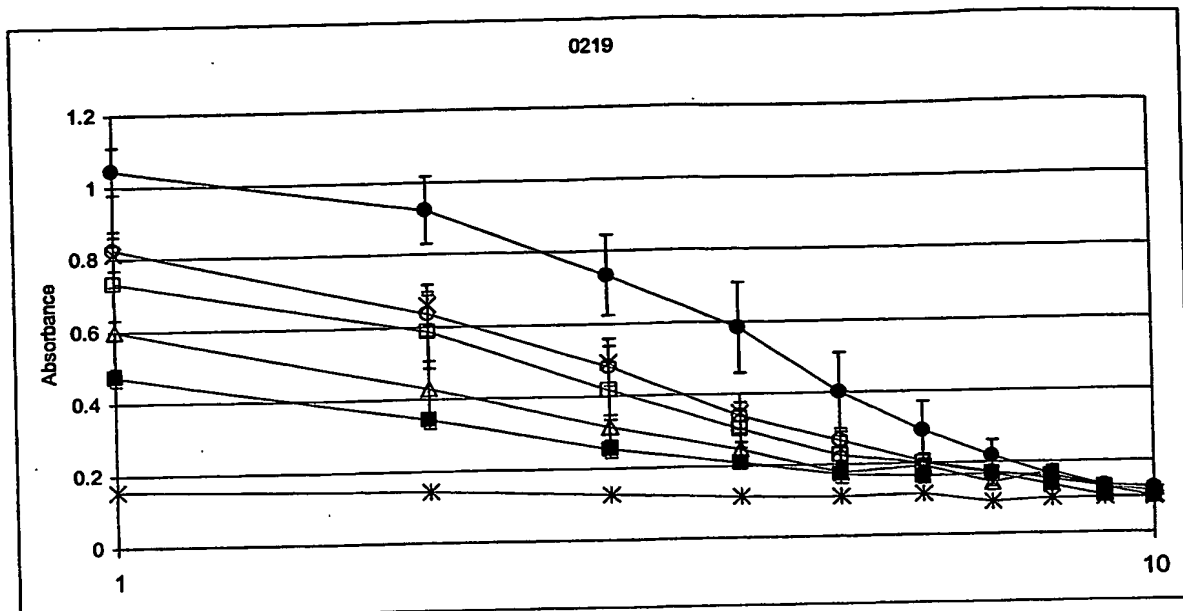


Figure 13

n=4 +/- SEM

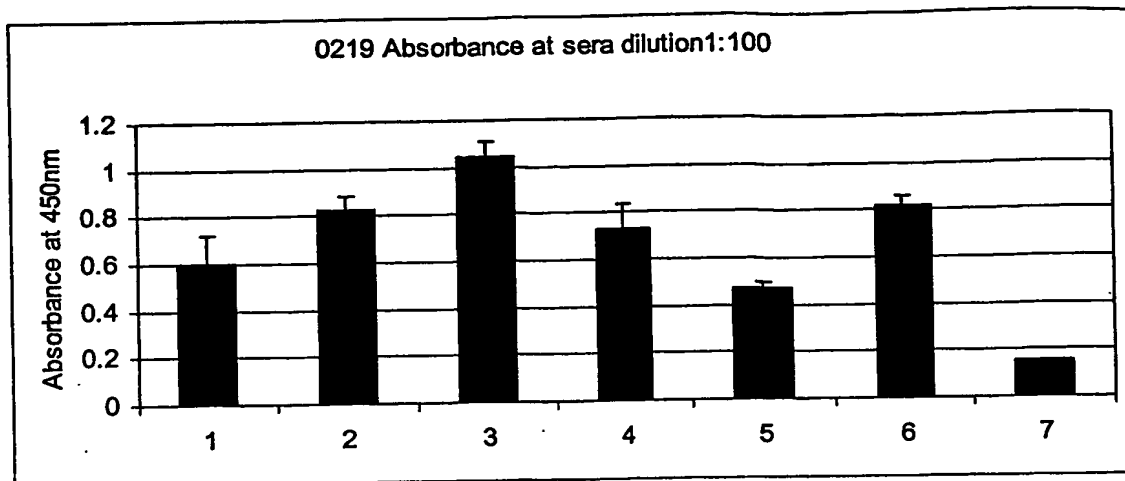
PRIME

- ▲ HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- × Eng-B + MVA.LacZ mix s.c.
- * Naïve

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

12 / 56

**Figure 14**

n=4 +/- SEM

PRIME

- 1.HbsAg s.c.
- 2.HbsAg i.d.
- 3.HbsAg + MVA.LacZ mixed i.d.
- 4.Engerix-B s.c.
- 5.Eng-B s.c. MVA.LacZ i.d.
- 6.Eng-B + MVA.LacZ mix s.c.
- 7.Naïve

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

13 / 56

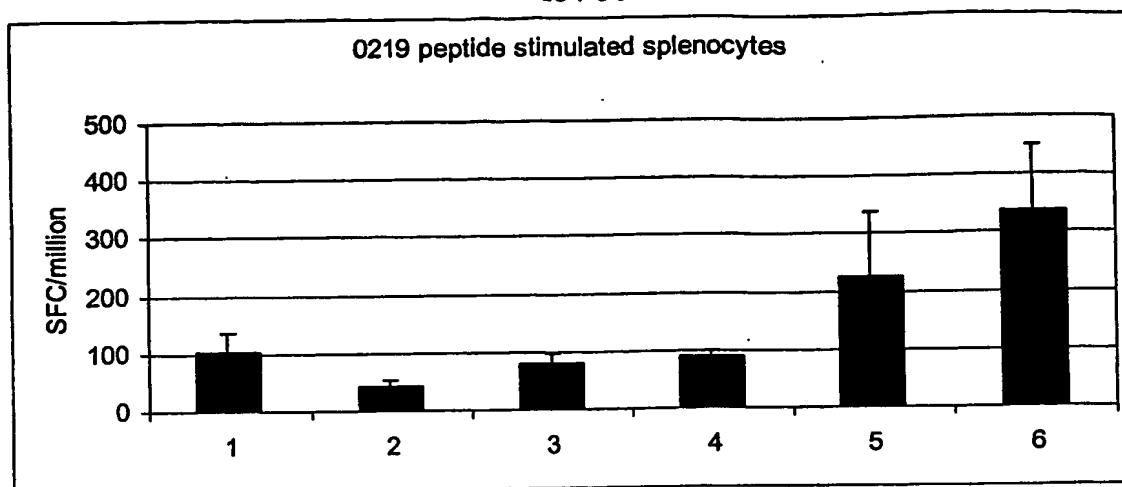


Figure 15

n=4 +/- SEM

PRIME

- 1.HbsAg s.c.
- 2.HbsAg i.d.
- 3.HbsAg + MVA.LacZ mixed i.d.
- 4.Engerix-B s.c.
- 5.Eng-B s.c. MVA.LacZ i.d.
- 6.Eng-B + MVA.LacZ mix s.c.

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

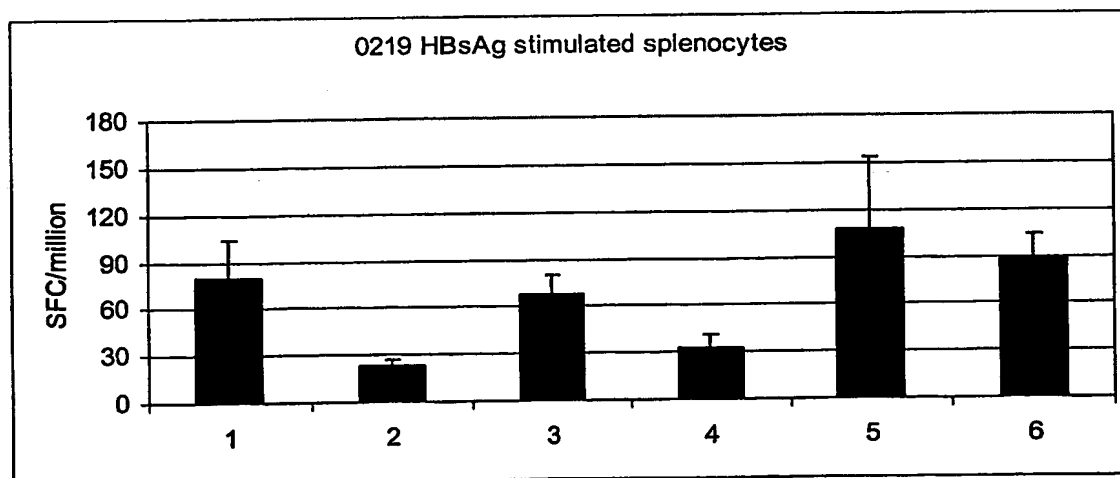


Figure 16

n=4 +/- SEM

PRIME

- 1.HbsAg s.c.
- 2.HbsAg i.d.
- 3.HbsAg + MVA.LacZ mixed i.d.
- 4.Engerix-B s.c.
- 5.Eng-B s.c. MVA.LacZ i.d.
- 6.Eng-B + MVA.LacZ mix s.c.

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

14 / 56

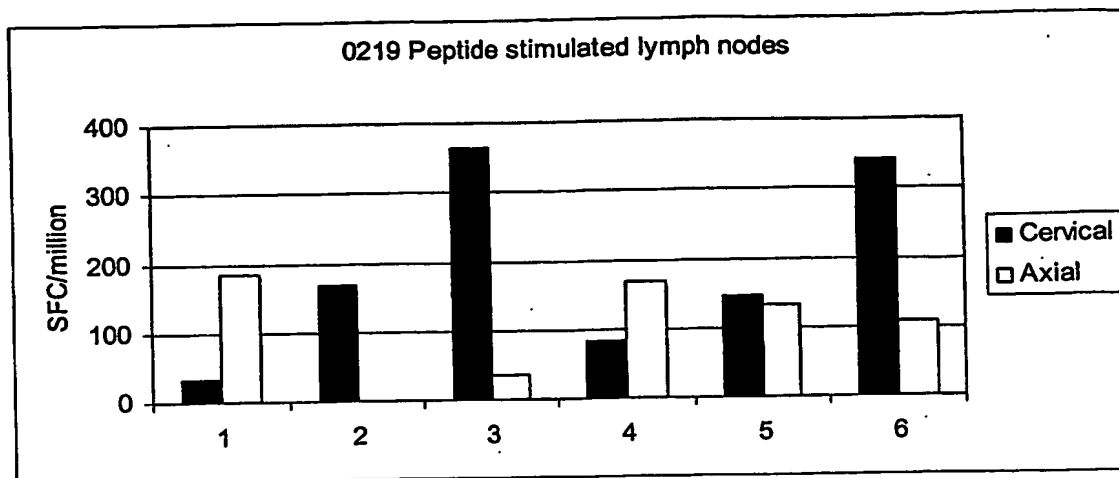


Figure 17
n= cells from 4 animals pooled

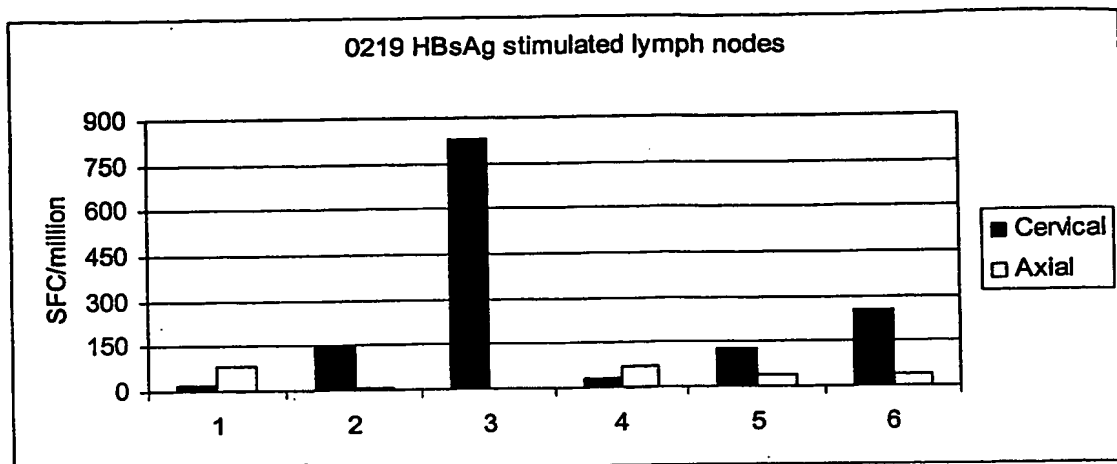
PRIME

1. HbsAg s.c.
2. HbsAg i.d.
3. HbsAg + MVA.LacZ mixed i.d.
4. Engerix-B s.c.
5. Eng-B s.c. MVA.LacZ i.d.
6. Eng-B + MVA.LacZ mix s.c.

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

15 / 56

**Figure 18**

n= cells from 4 animals pooled

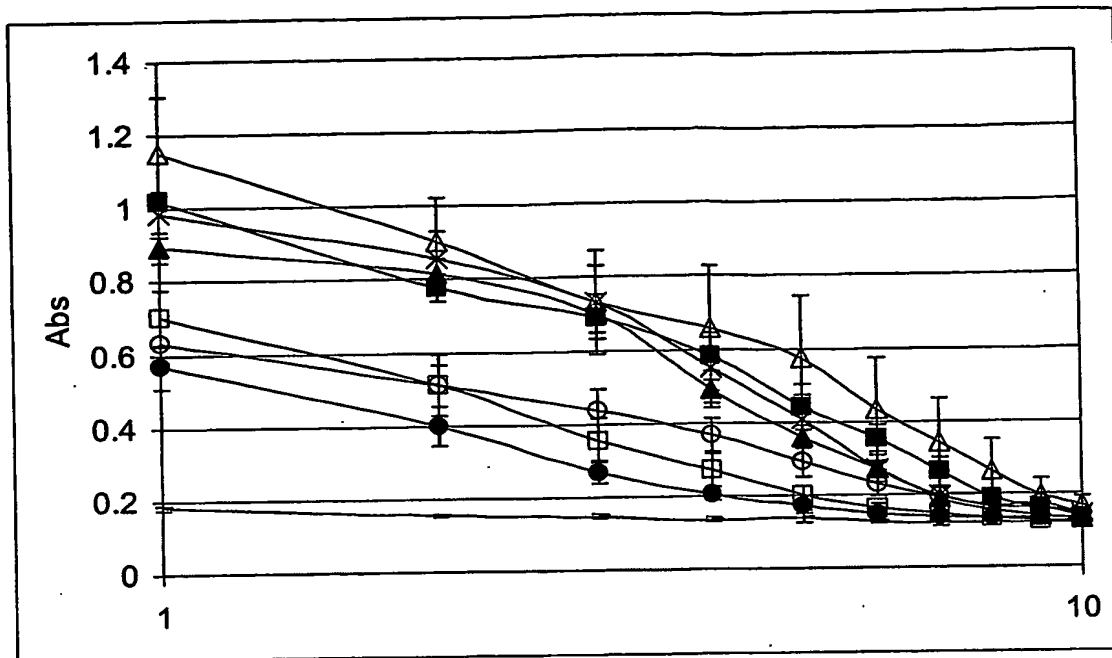
PRIME

1. HbsAg s.c.
2. HbsAg i.d.
3. HbsAg + MVA.LacZ mixed i.d.
4. Engerix-B s.c.
5. Eng-B s.c. MVA.LacZ i.d.
6. Eng-B + MVA.LacZ mix s.c.

BOOST

- HbsAg s.c.
- HbsAg i.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.

16 / 56

**Figure 19**

n=4 +/- SEM

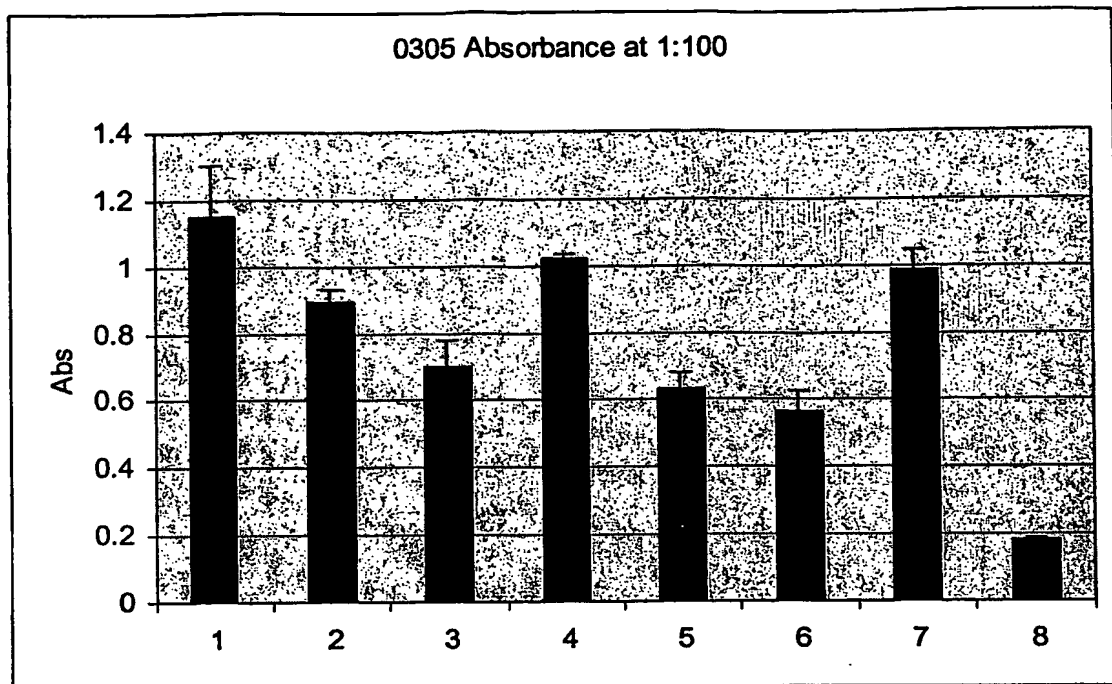
PRIME

- △ HBsAg + MVA.HBs mix i.d.
- ▲ DNA.HBs + HBsAg mix i.d.
- Engerix-B 5ug s.c.
- DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- DNA.HBs i.m. & HBsAg i.d..
- DNA.HBs i.m. & Engerix-B s.c.
- * HBsAg + MVA.LacZ mix i.d.
- Naive

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B s.c. + MVA.HBs i.d.
- HBsAg + FP9.LacZ mix i.d.

17 / 56

**Figure 20**

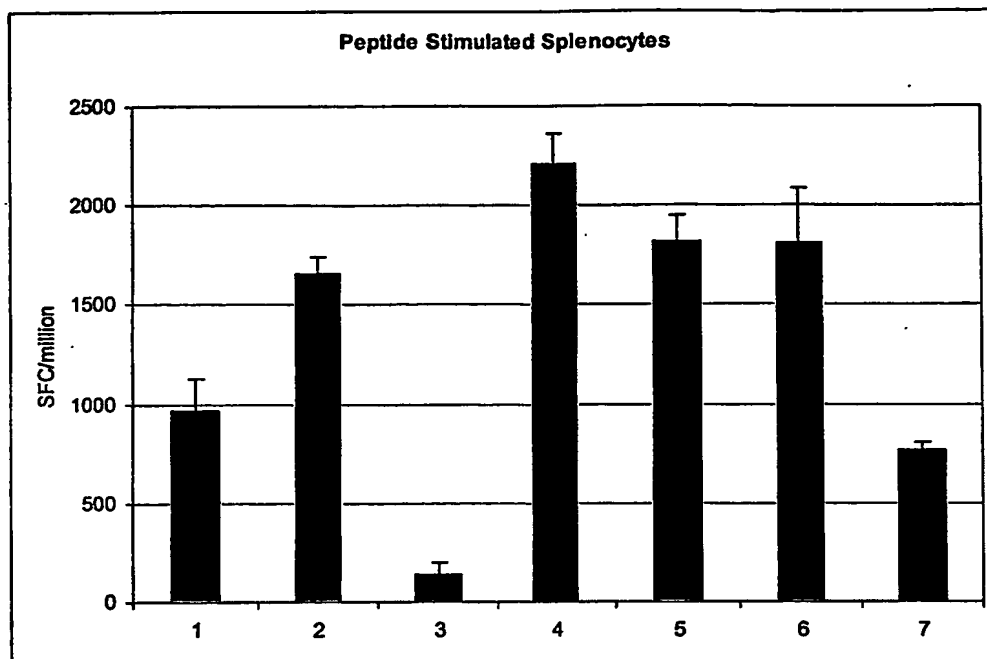
n=4 +/- SEM

PRIME

- 1 HBsAg + MVA.HBs mix i.d.
- 2 DNA.HBs + HBsAg mix i.d.
- 3 Engerix-B 5ug s.c.
- 4 DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- 5 DNA.HBs i.m. & HBsAg i.d.
- 6 DNA.HBs i.m. & Engerix-B s.c.
- 7 HBsAg + MVA.LacZ mix i.d.
8. Naive

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B s.c. + MVA.HBs i.d.
- HBsAg + FP9.LacZ mix i.d.

**Figure 21**

n=4 +/- SEM

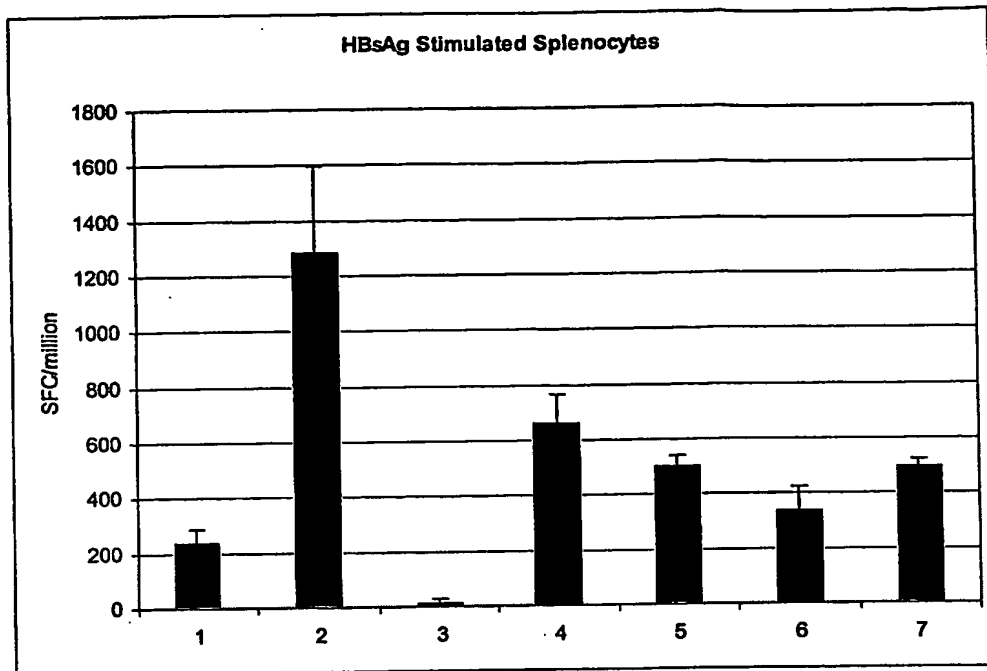
PRIME

- 1 HBsAg + MVA.HBs mix i.d.
- 2 DNA.HBs + HBsAg mix i.d.
- 3 Engerix-B 5ug s.c.
- 4 DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- 5 DNA.HBs i.m. & HBsAg i.d.
- 6 DNA.HBs i.m. & Engerix-B s.c.
- 7 HBsAg + MVA.LacZ mix i.d.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B s.c. + MVA.HBs i.d.
- HBsAg + FP9.LacZ mix i.d.

19 / 56

**Figure 22**

n=4 +/- SEM

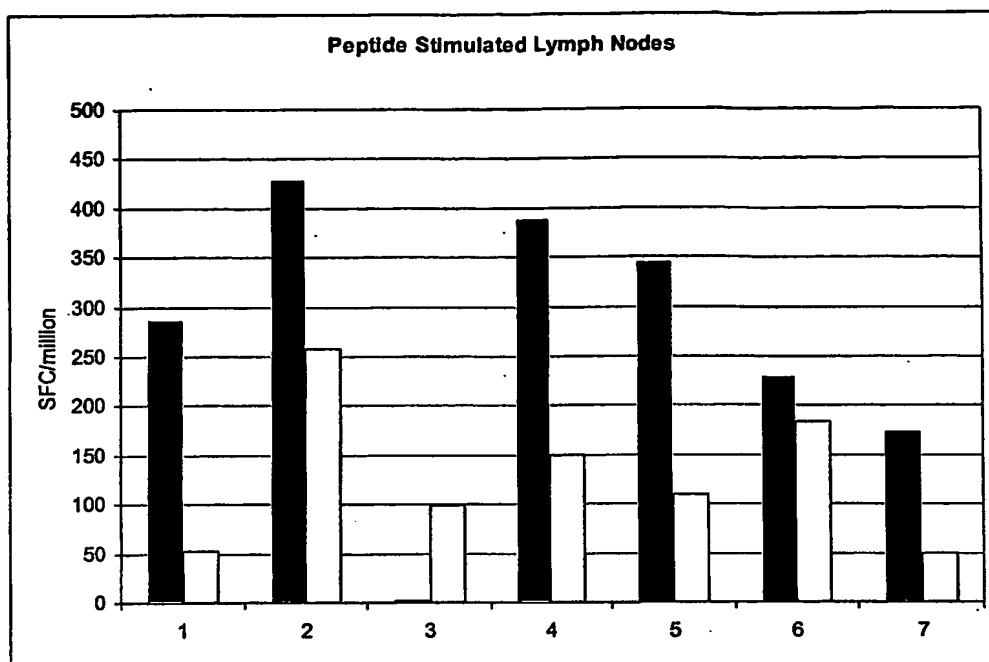
PRIME

- 1 HBsAg + MVA.HBs mix i.d.
- 2 HBsAg + pSG2.HBs mix i.d.
- 3 Engerix-B 5ug s.c.
- 4 DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- 5 DNA.HBs i.m. & HBsAg i.d.
- 6 DNA.HBs i.m. & Engerix-B s.c.
- 7 HBsAg + MVA.LacZ mix i.d.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B s.c. + MVA.HBs i.d.
- HBsAg + FP9.LacZ mix i.d.

20 / 56

**Figure 23**

n= cells from 4 animals pooled

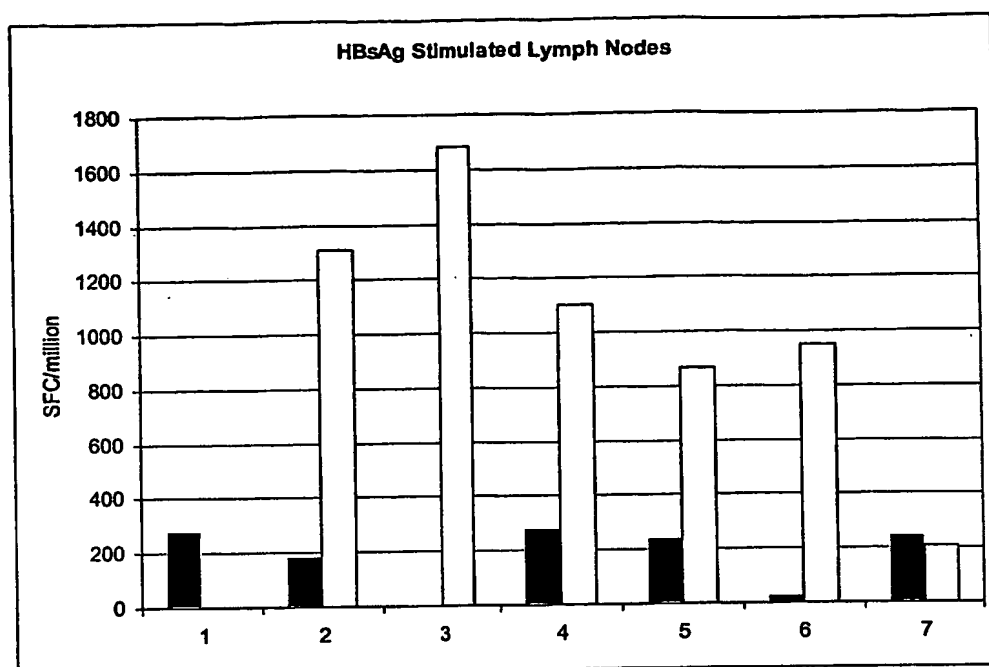
PRIME

- 1 HBsAg + MVA.HBs mix i.d.
- 2 DNA.HBs + HBsAg mix i.d.
- 3 Engerix-B 5ug s.c.
- 4 DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- 5 DNA.HBs i.m. & HBsAg i.d.
- 6 DNA.HBs i.m. & Engerix-B s.c.
- 7 HBsAg + MVA.LacZ mix i.d.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B s.c. + MVA.HBs i.d.
- HBsAg + FP9.LacZ mix i.d.

21 / 56

**Figure 24**

n= cells from 4 animals pooled

PRIME

- 1 HBsAg + MVA.HBs mix i.d.
- 2 DNA.HBs + HBsAg mix i.d.
- 3 Engerix-B 5ug s.c.
- 4 DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- 5 DNA.HBs i.m. & HBsAg i.d.
- 6 DNA.HBs i.m. & Engerix-B s.c.
- 7 HBsAg + MVA.LacZ mix i.d.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d. + Engerix-B s.c.
- HBsAg + FP9.LacZ mix i.d.

22 / 56

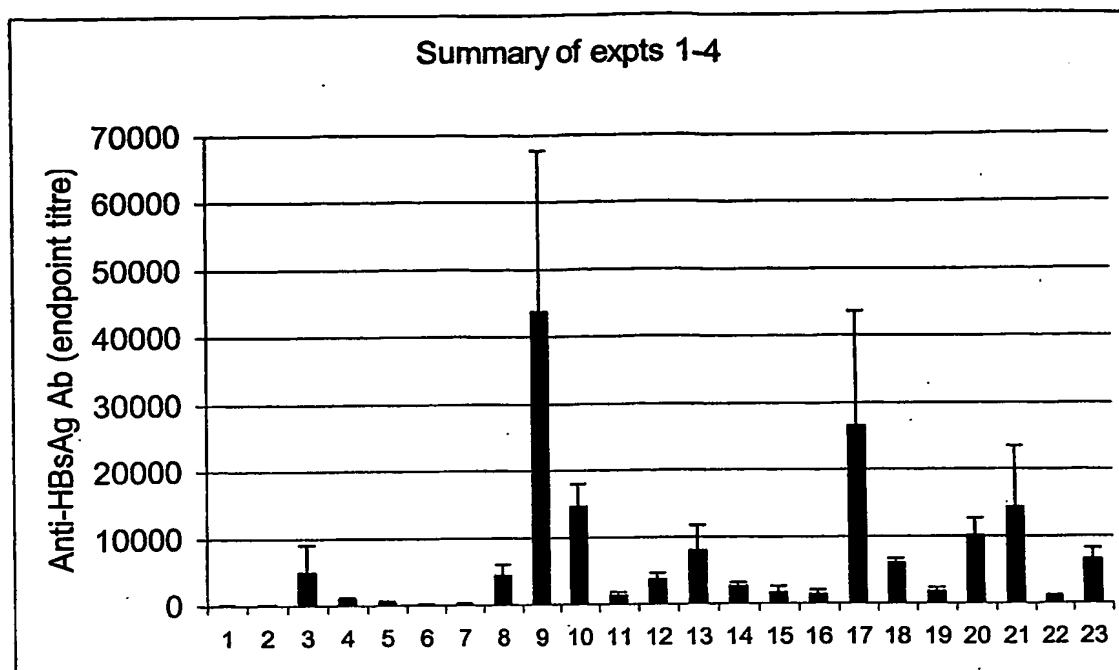


Figure 25

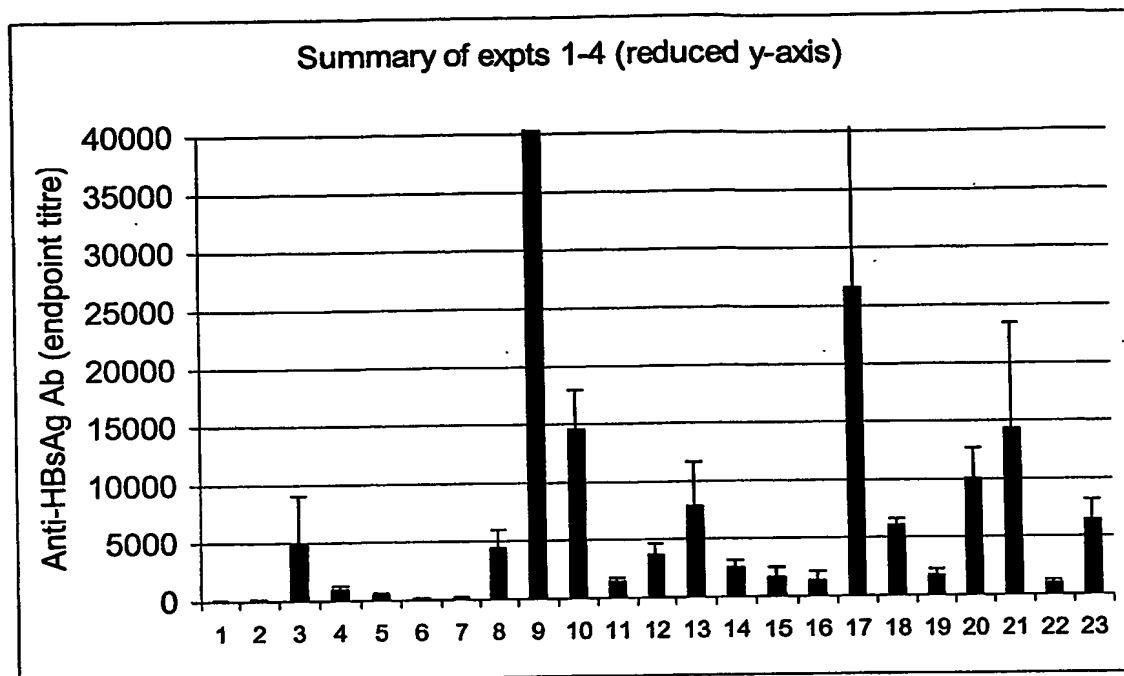
n=3-6 +/- SEM

PRIME

1. DNA.HBs i.m.
2. Nil
3. DNA.HBs i.m.
4. DNA.HBs i.m.
5. DNA.HBs i.m.
6. DNA.HBs i.m.
7. DNA.HBs
8. DNA.HBs i.m. Engerix s.c.
9. DNA.HBs i.m. Engerix s.c.
10. DNA.HBs i.m. Engerix s.c.
11. HbsAg s.c.
12. HbsAg I.d.
13. HbsAg + MVA.LacZ mixed i.d.
14. Engerix-B s.c.
15. Eng-B s.c. MVA.LacZ i.d.
16. Eng-B + MVA.LacZ mix s.c.
17. HBsAg + MVA.HBs mix i.d.
18. HBsAg + pSG2.HBs mix i.d.
19. Engerix-B 5ug s.c.
20. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
21. DNA.HBs i.m. & HBsAg i.d.
22. DNA.HBs i.m. & Engerix-B s.c.
23. HBsAg + MVA.LacZ mix i.d.

BOOST

- MVA.HBs i.v.
- Engerix-B s.c.
- MVA.HBs + Engerix-B s.c.
- MVA.HBs i.v. Engerix-B s.c.
- Engerix-B s.c.
- MVA.HBs + Alum s.c.
- MVA.HBs i.d.
- MVA.HBs s.c. Engerix s.c.
- MVA.HBs i.d. Engerix s.c.
- MVA.lacZ s.c. Engerix s.c.
- HbsAg s.c.
- HbsAg I.d.
- HbsAg + MVA.LacZ mixed i.d.
- Engerix-B s.c.
- Eng-B s.c. MVA.LacZ i.d.
- Eng-B + MVA.LacZ mix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- Engerix-B 5ug s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d. + Engerix-B s.c.
- HBsAg + FP9.LacZ mix i.d.

**Figure 26**

n=3-6 +/- SEM

24 / 56

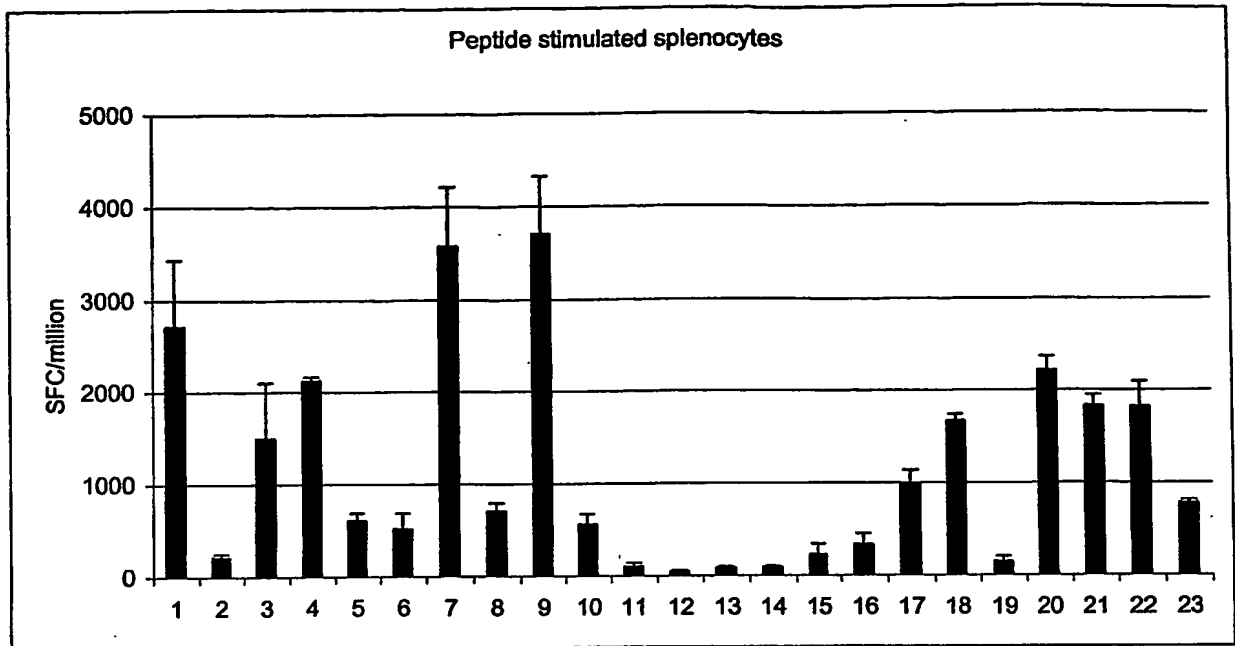


Figure 27

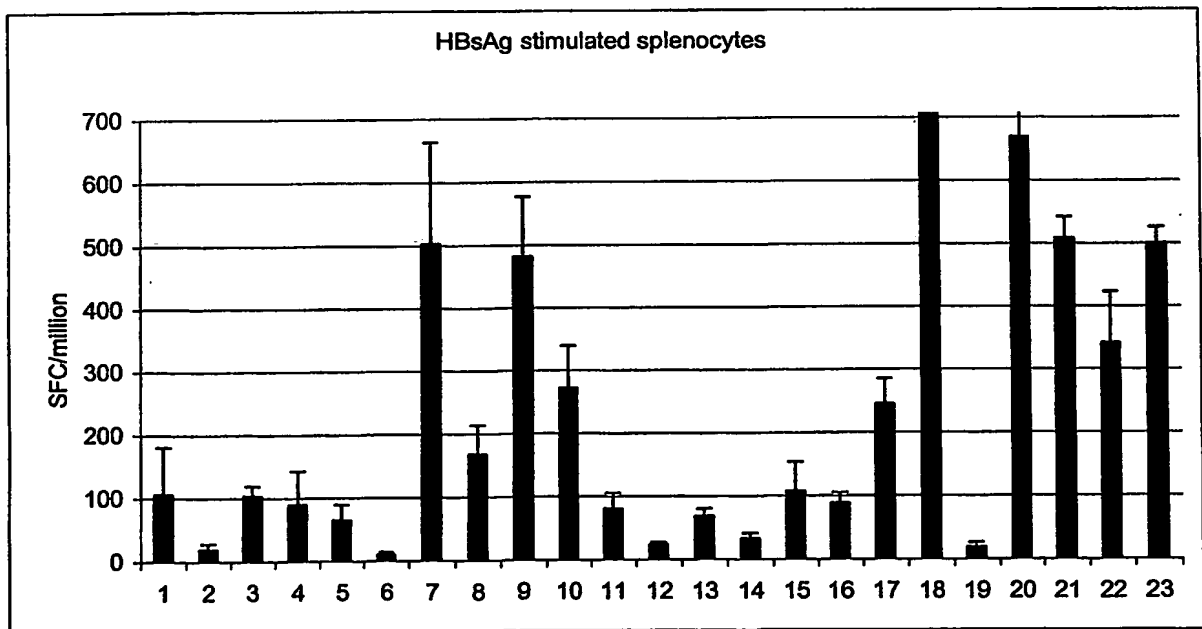


Figure 28

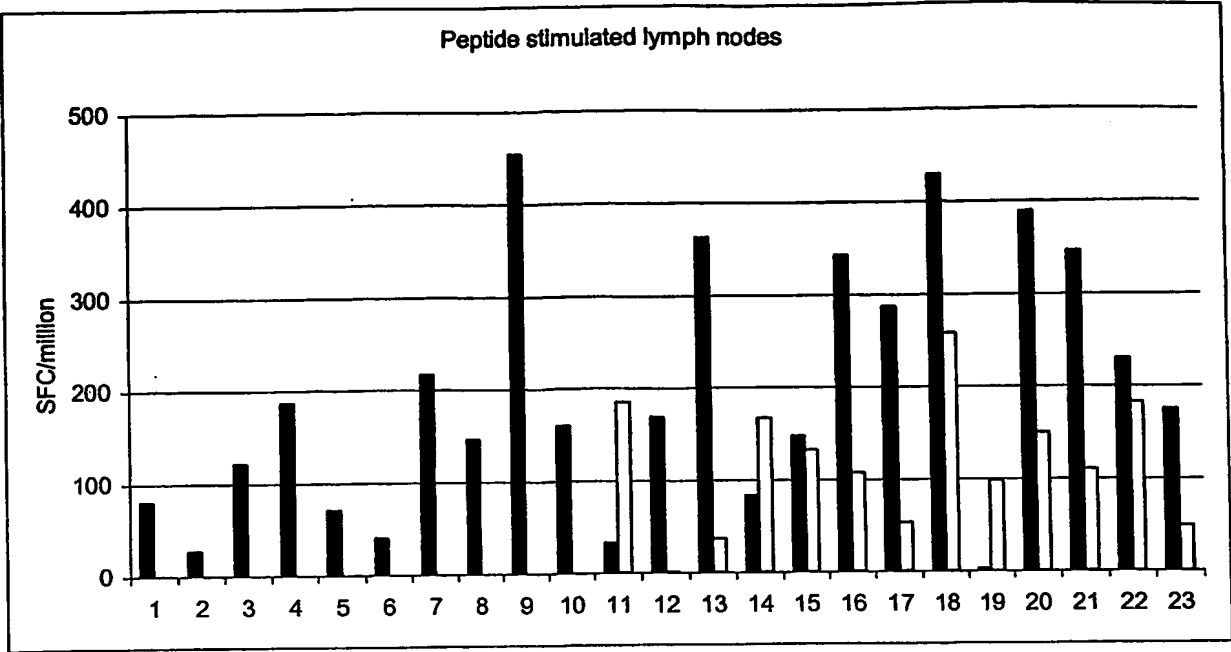


Figure 29

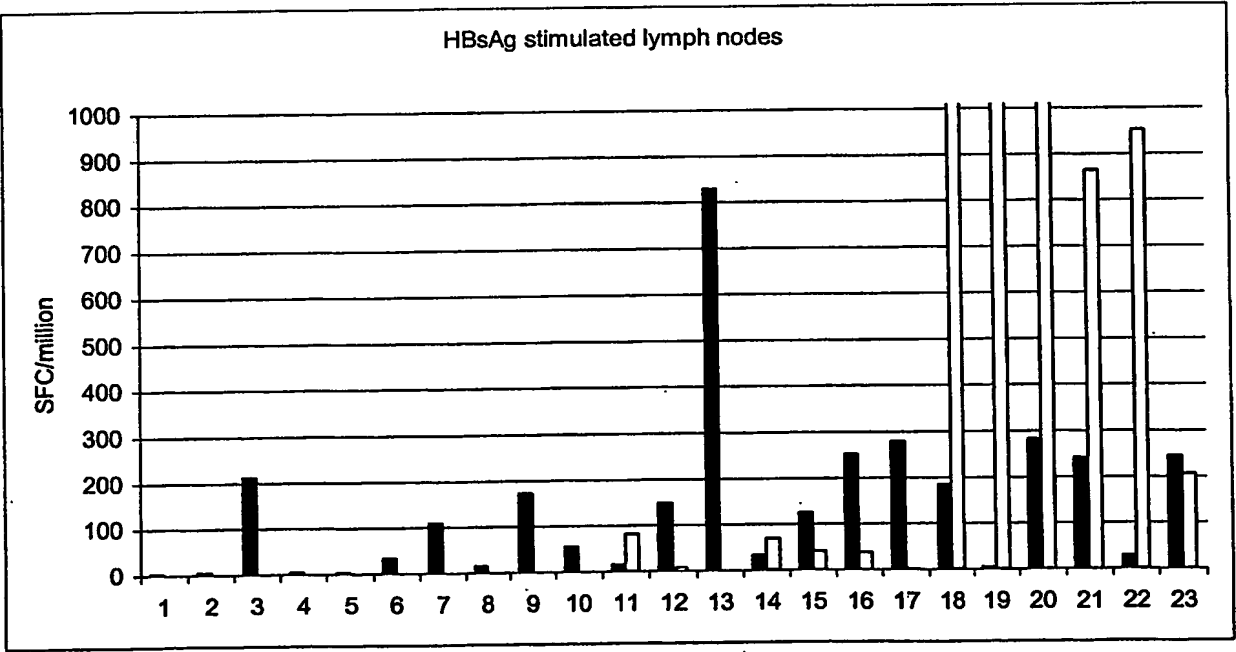


Figure 30

26 / 56

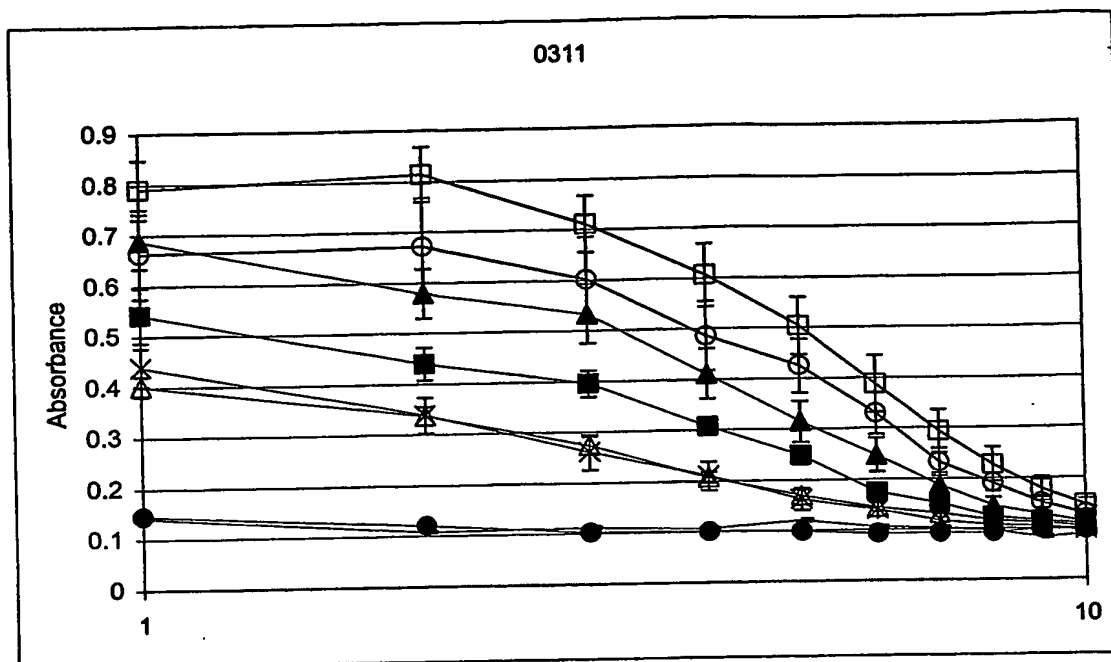


Figure 31

n=4 +/- SEM

PRIME

- △ DNA.HBs i.m. Engerix s.c.
- ▲ HBsAg + pSG2.HBs mix i.d.
- DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
- DNA.HBs i.m. & HBsAg i.d.
- HBsAg + MVA.HBs mix i.d.
- DNA.HBs i.m.
- * Engerix-B s.c.
- Naive

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d.
- Engerix-B s.c.

27 / 56

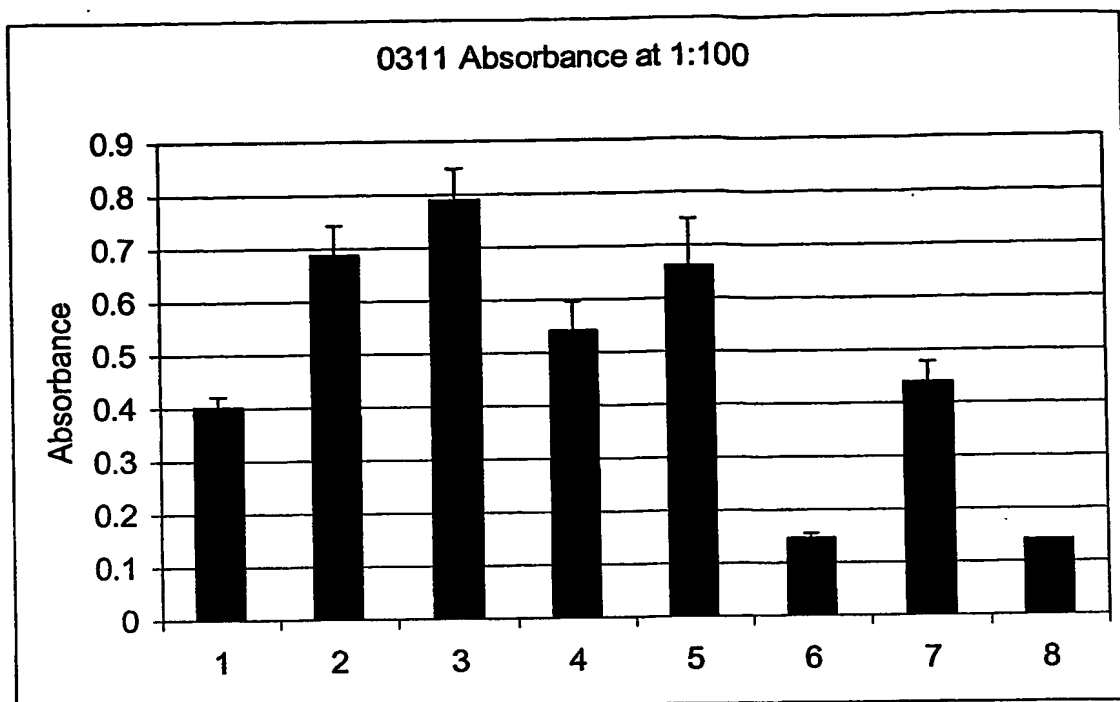


Figure 32

n=3-4 +/- SEM

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d.
6. DNA.HBs i.m.
7. Engerix-B s.c.
8. Naive

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d.
- Engerix-B s.c.

28 / 56

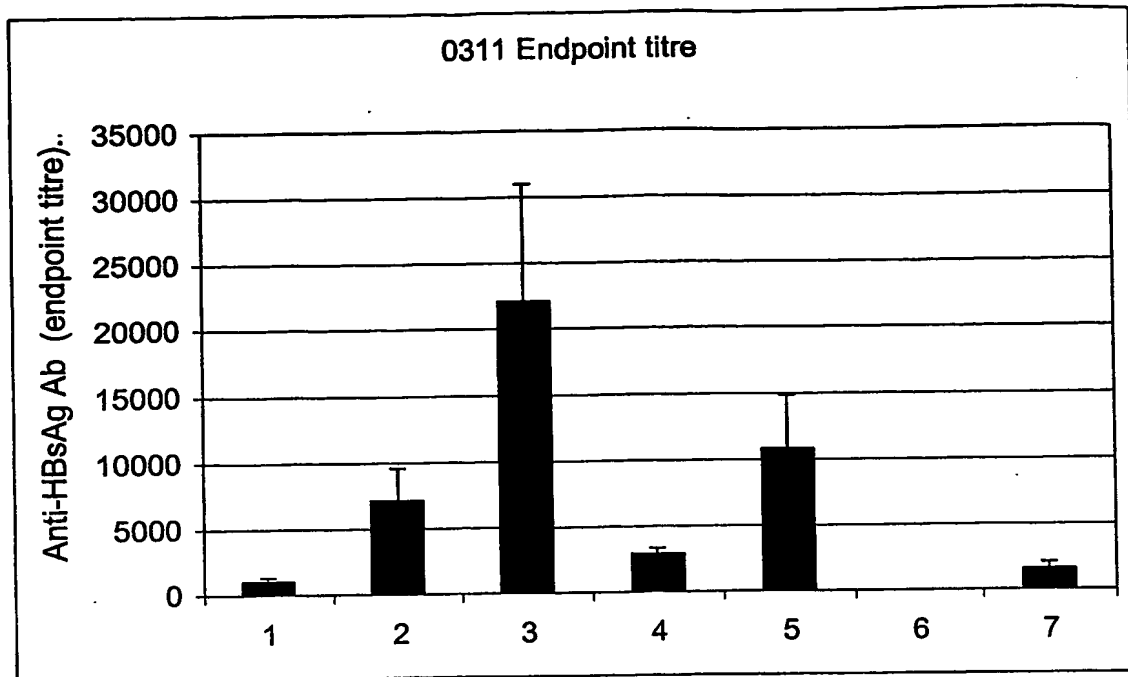


Figure 33

n=3-4 +/- SEM

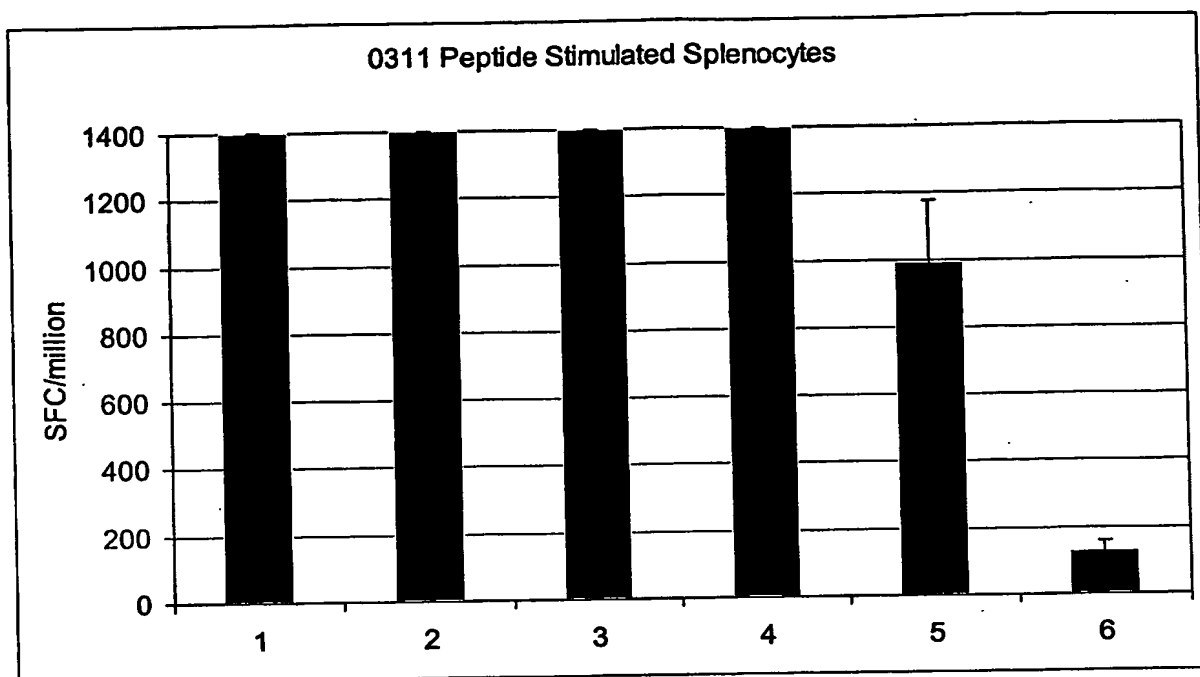
PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.
8. Naive

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

29 / 56

**Figure 34**

n=3-4 +/- SEM

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- Engerix-B s.c.

30 / 56

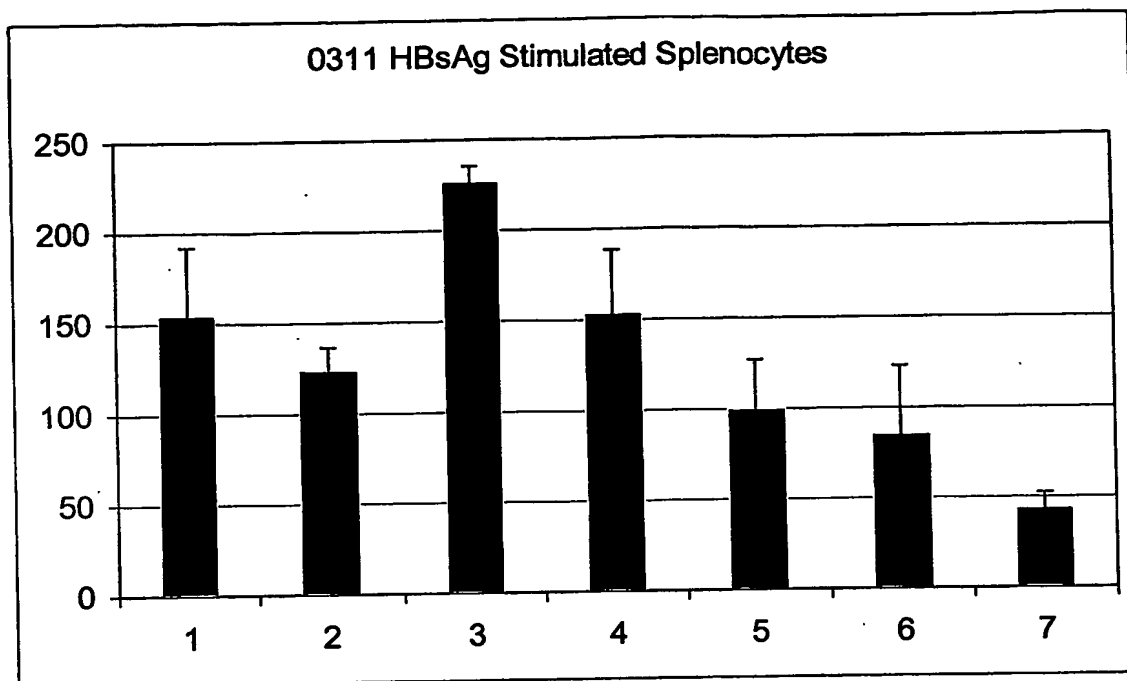


Figure 35
 $n=3-4 \pm$ SEM

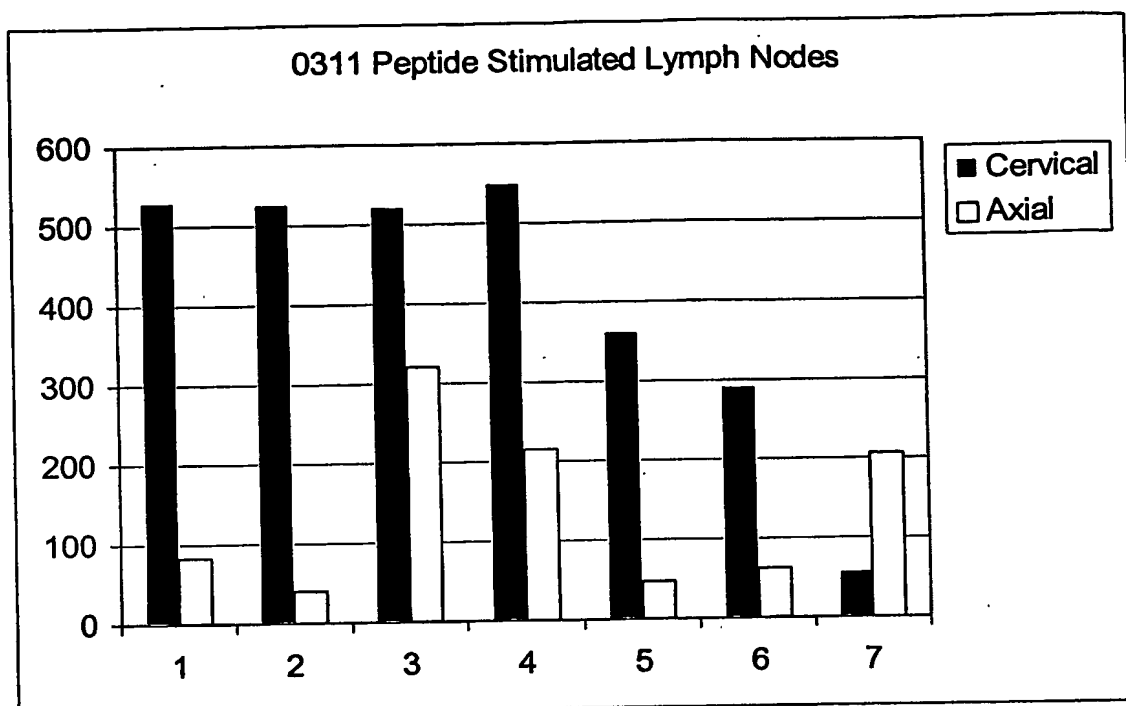
PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

31 / 56

**Figure 36**

n=pooled lymph nodes from 3-4 animals

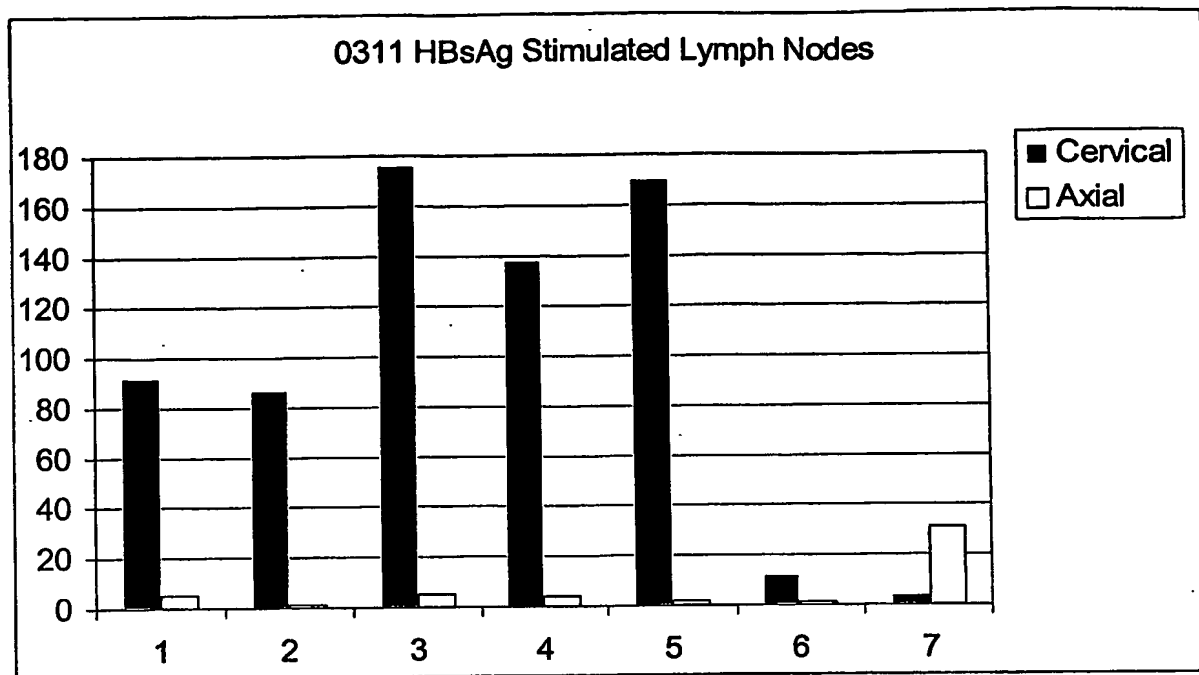
PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

32 / 56

**Figure 37**

n=pooled lymph nodes from 3-4 animals

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d.
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d.
- Engerix-B s.c.

33 / 56

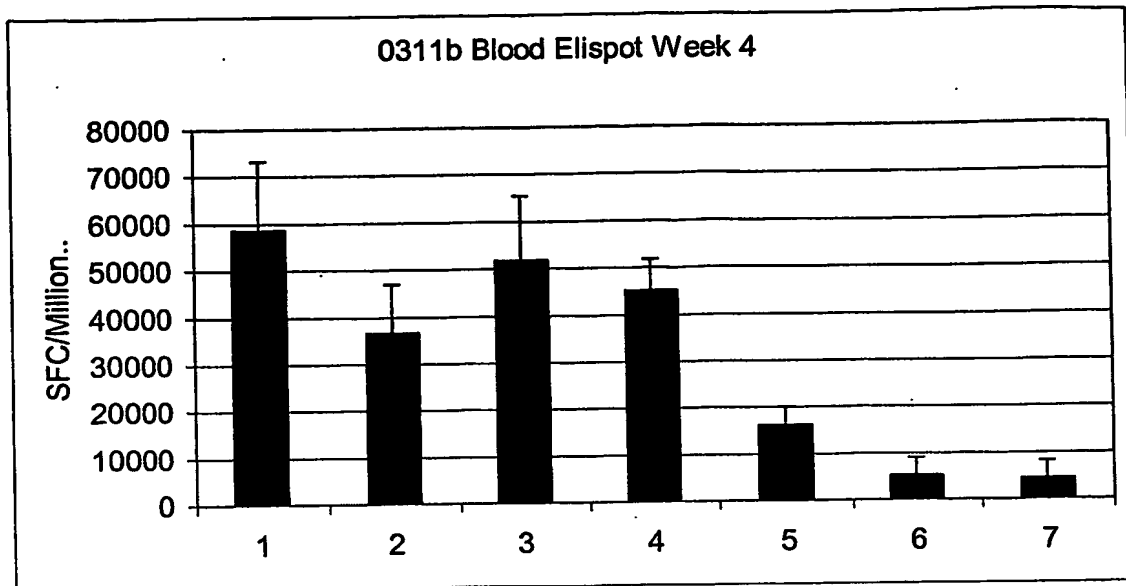


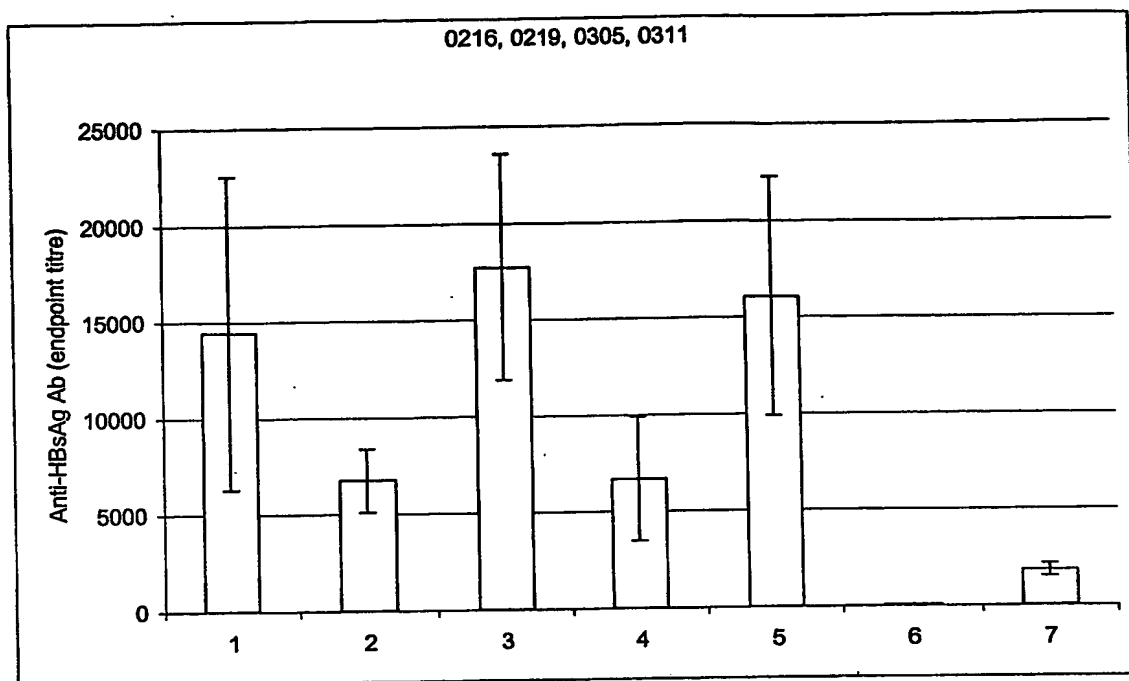
Figure 38
n= 4 +/- SEM

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

**Figure 39**

n=11-17 +/-SEM

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d.
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs i.d.
- Engerix-B s.c.

35 / 56

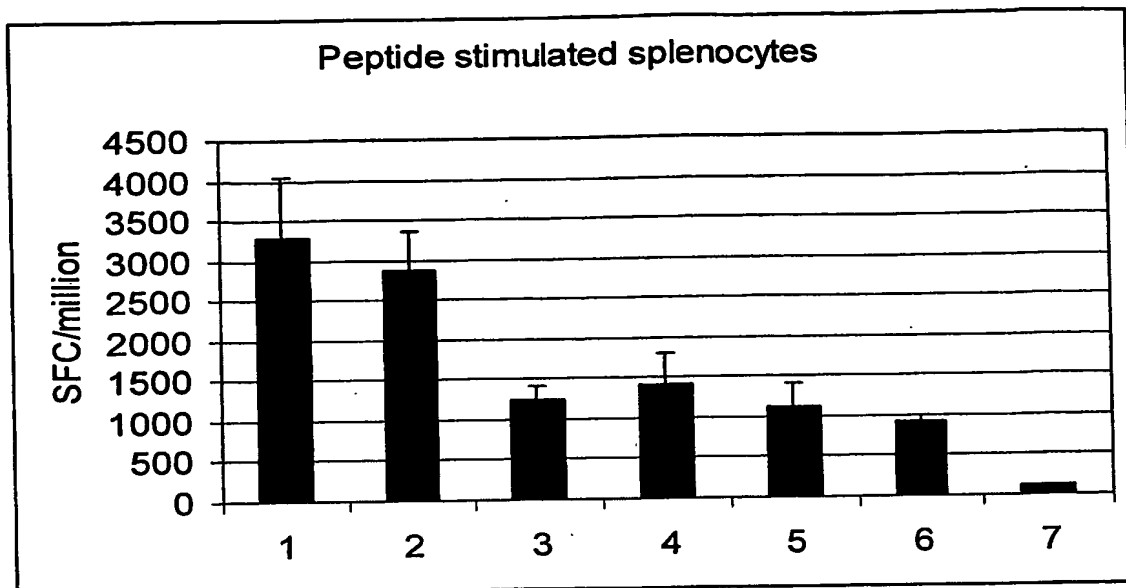


Figure 40
n=4-12 +/-SEM

PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

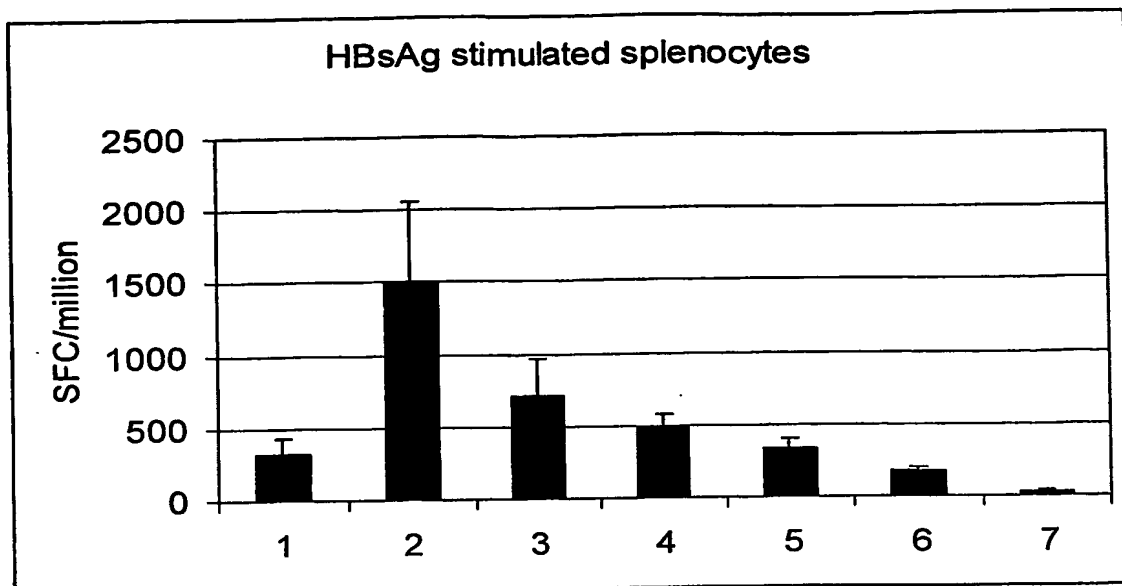


Figure 41
n=7-13 +/-SEM

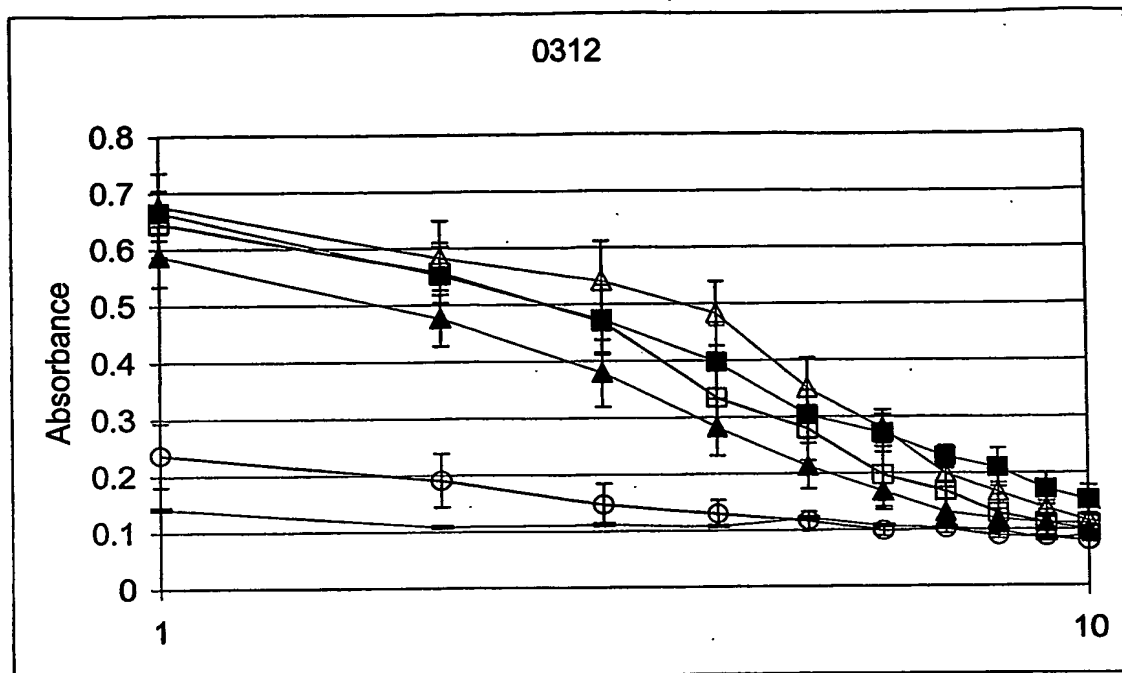
PRIME

1. DNA.HBs i.m. Engerix s.c.
2. HBsAg + pSG2.HBs mix i.d.
3. DNA.HBs i.m. & HBsAg + FP9.LacZ 5 mix i.d.
4. DNA.HBs i.m. & HBsAg i.d.
5. HBsAg + MVA.HBs mix i.d
6. DNA.HBs i.m.
7. Engerix-B s.c.

BOOST

- MVA.HBs i.d. Engerix s.c.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d
- MVA.HBs i.d
- Engerix-B s.c.

37 / 56

**Figure 42**

n=4 +/- SEM

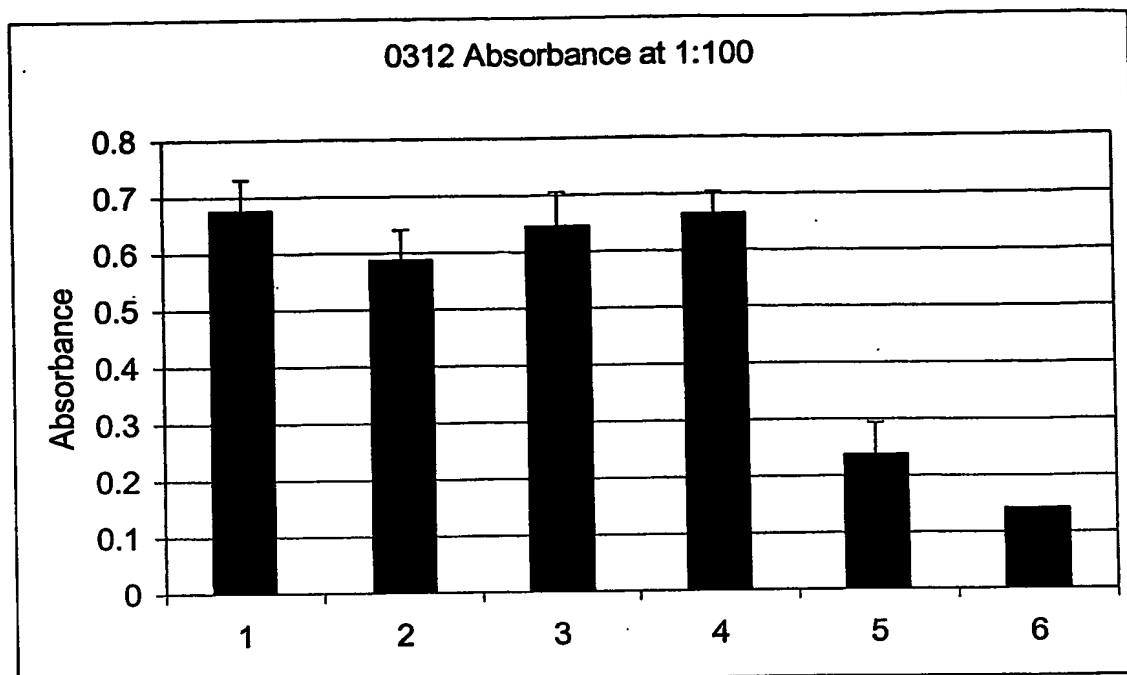
PRIME

- △ HBsAg + FP9.LacZ mix i.d.
- ▲ HBsAg + Adeno.PbCSP mix i.d.
- DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
- HBsAg + MVA.LacZ mix i.d.
- DNA.HBs i.m. & Engerix-B s.c.
- Naive

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs s.c.

38 / 56

**Figure 43**

n=4 +/- SEM

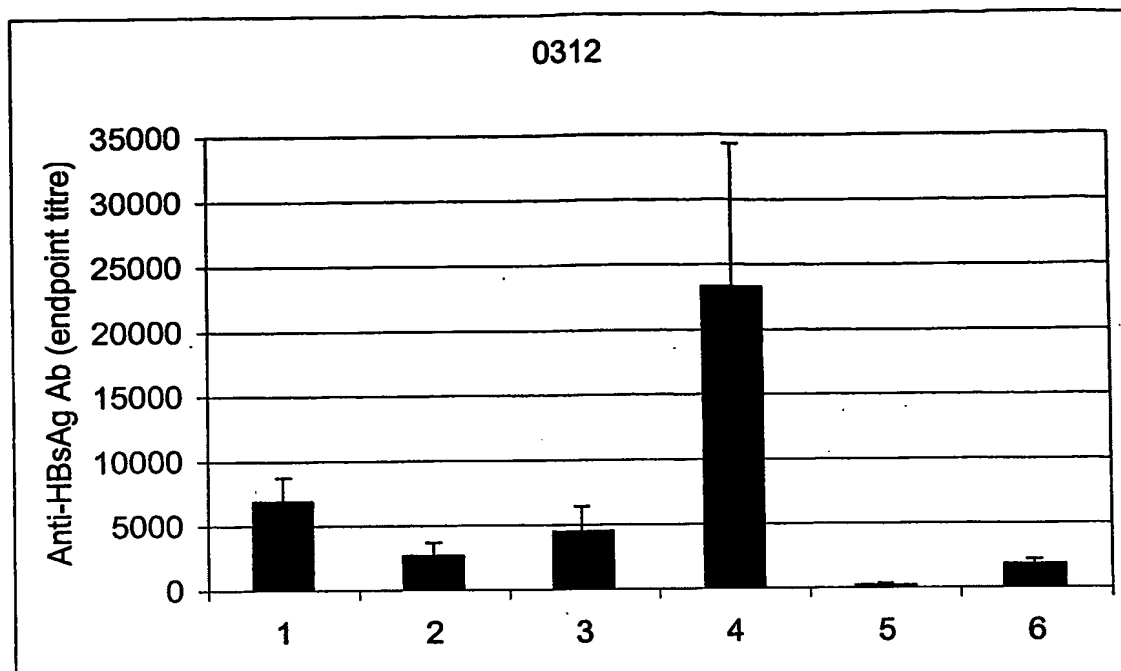
PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.
6. Naive

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs s.c.

39 / 56

**Figure 44**

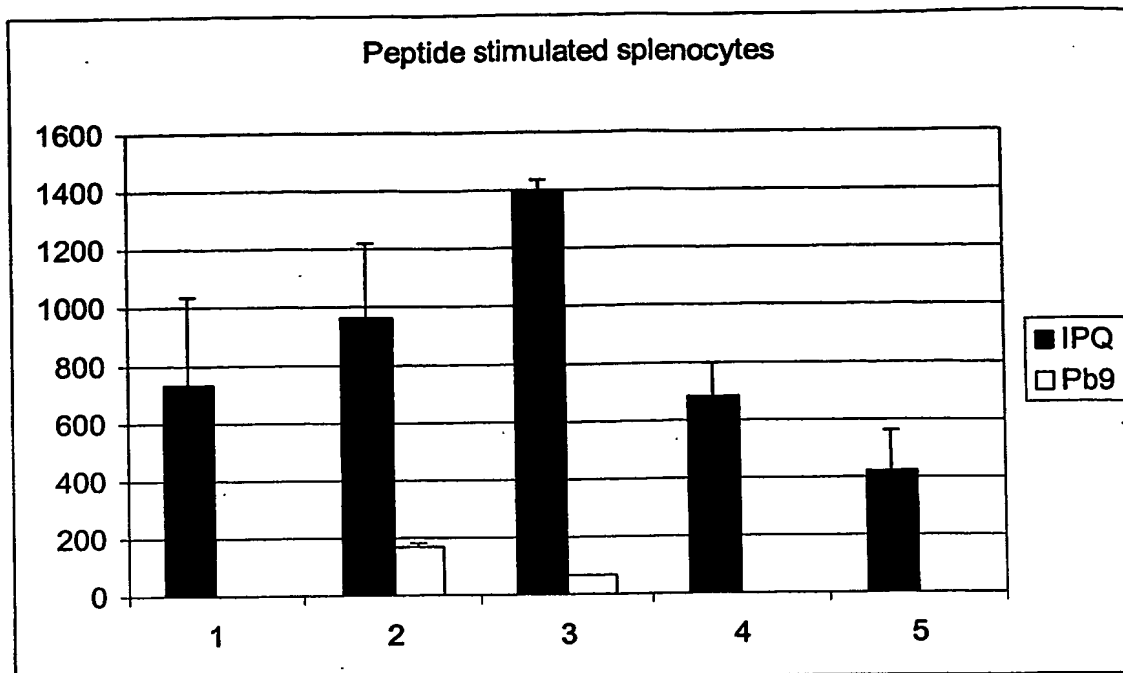
n=4 +/- SEM
(except group 6 where n=16)

PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.
6. Engerix-B s.c.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs s.c.
- Engerix-B s.c. (exp. 2-5)

**Figure 45**

$n=4 \pm$ SEM

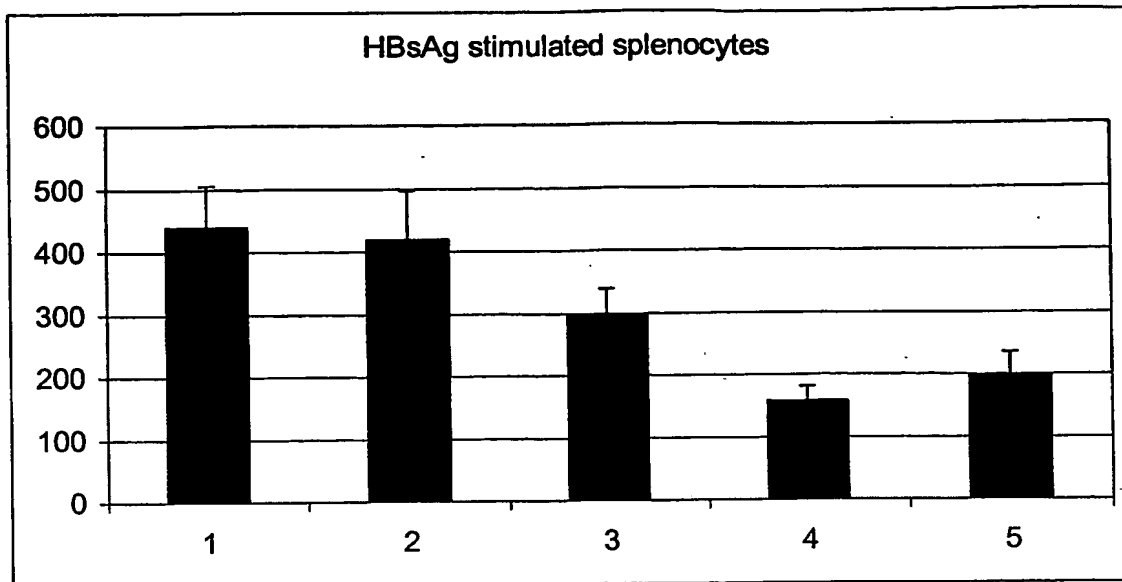
PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.

BOOST

- HBsAg + MVA.HBs mix i.d.
 HBsAg + MVA.HBs mix i.d.
 HBsAg + MVA.HBs mix i.d.
 HBsAg + MVA.HBs mix i.d.
 MVA.HBs s.c.

41 / 56

**Figure 46**

n=4 +/- SEM

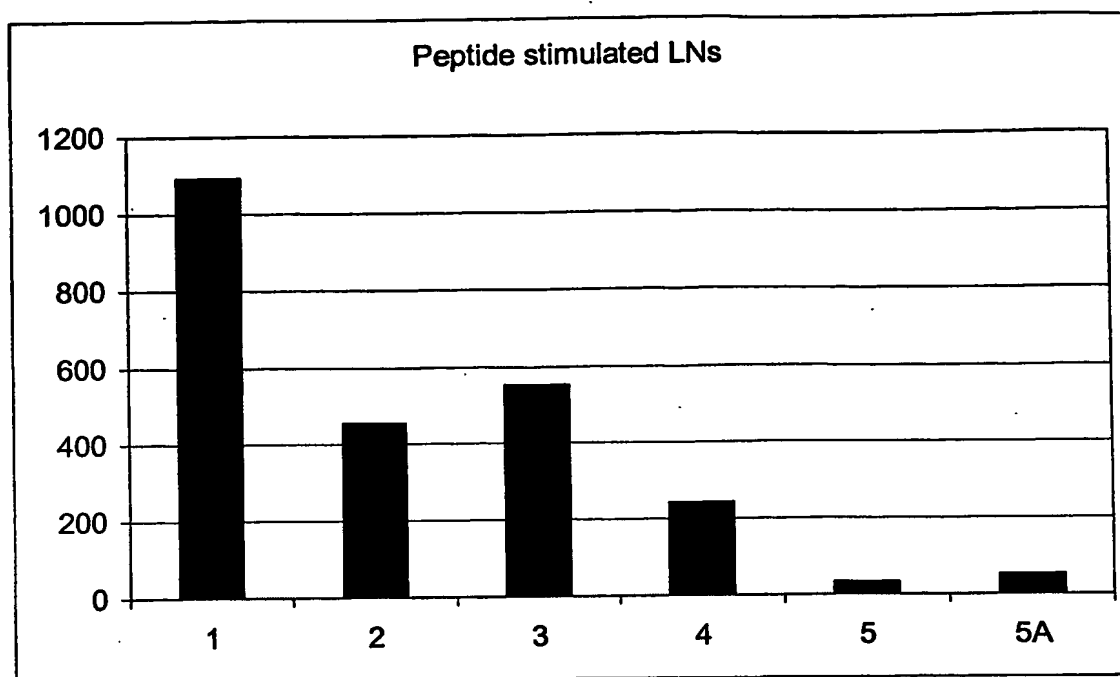
PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.

BOOST

- HBsAg + MVA.HBs mix i.d.
HBsAg + MVA.HBs mix i.d.
HBsAg + MVA.HBs mix i.d.
HBsAg + MVA.HBs mix i.d.
MVA.HBs s.c.

42 / 56

**Figure 47**

n=pooled cervical lymph nodes from 4 animals (except 5A where lymph nodes were axial)

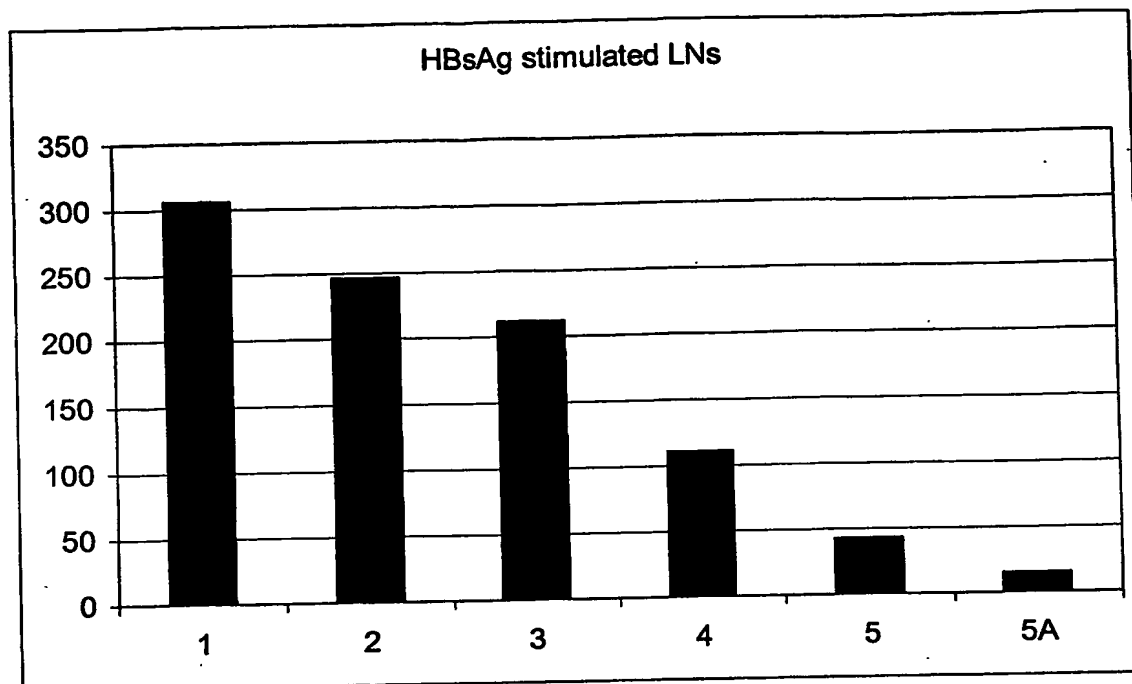
PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.
- 5A. DNA.HBs i.m. & Engerix-B s.c.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs s.c.
- MVA.HBs s.c.

43 / 56

**Figure 48**

n=pooled cervical lymph nodes from 4 animals (except 5A where lymph nodes were axial)

PRIME

1. HBsAg + FP9.LacZ mix i.d.
2. HBsAg + Adeno.PbCSP mix i.d.
3. DNA.HBs i.m. & HBsAg + Adeno.PbCSP mix i.d.
4. HBsAg + MVA.LacZ mix i.d.
5. DNA.HBs i.m. & Engerix-B s.c.
- 5A. DNA.HBs i.m. & Engerix-B s.c.

BOOST

- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- HBsAg + MVA.HBs mix i.d.
- MVA.HBs s.c.
- MVA.HBs s.c.

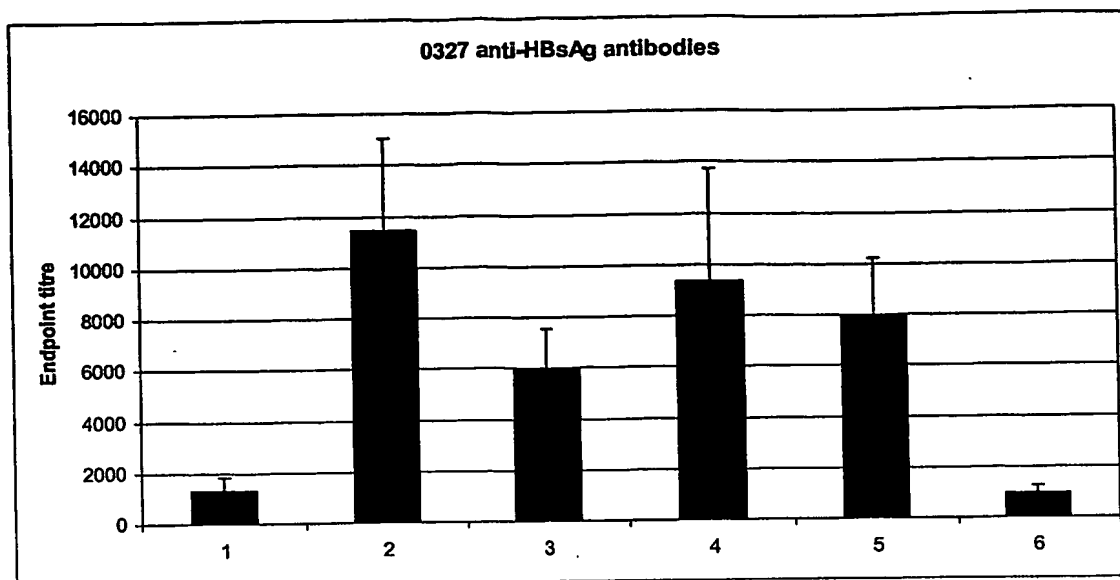


Figure 49

- | | |
|-----------------------------|---------------------------|
| 1. [Adeno.LacZ + Ag] id x 2 | 2. [ALVAC+ Ag] id x 2 |
| 3. [FP.LacZ + Ag] id x 2 | 4. [MVA.LacZ + Ag] id x 2 |
| 5. [NYVAC.LacZ + Ag] id x 2 | 6. 2 x Ag id |

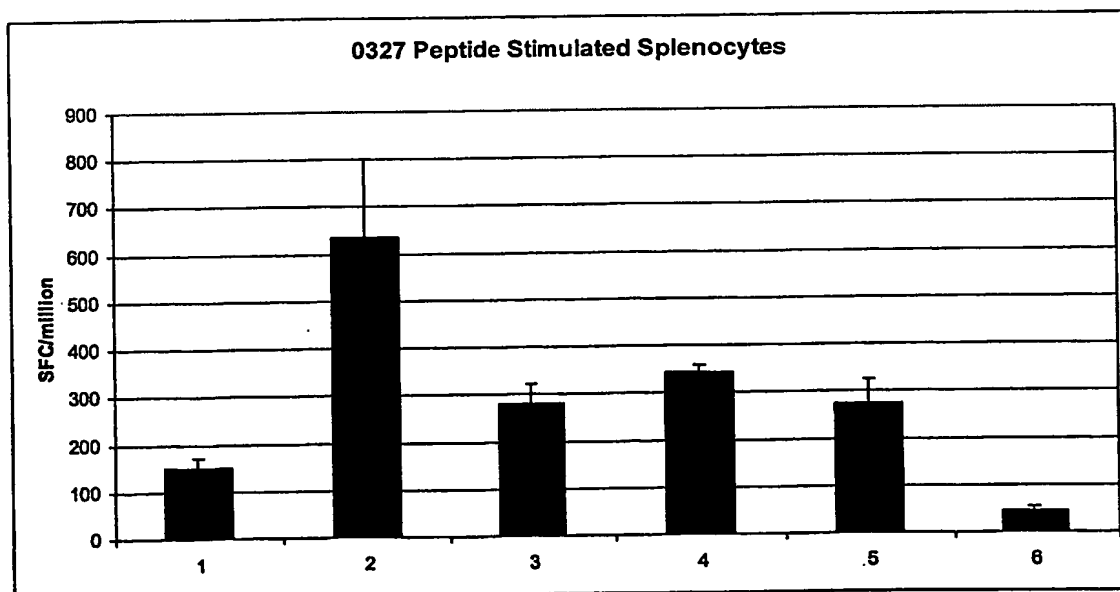


Figure 50

- | | |
|-----------------------------|---------------------------|
| 1. [Adeno.LacZ + Ag] id x 2 | 2. [ALVAC+ Ag] id x 2 |
| 3. [FP.LacZ + Ag] id x 2 | 4. [MVA.LacZ + Ag] id x 2 |
| 5. [NYVAC.LacZ + Ag] id x 2 | 6. 2 x Ag id |

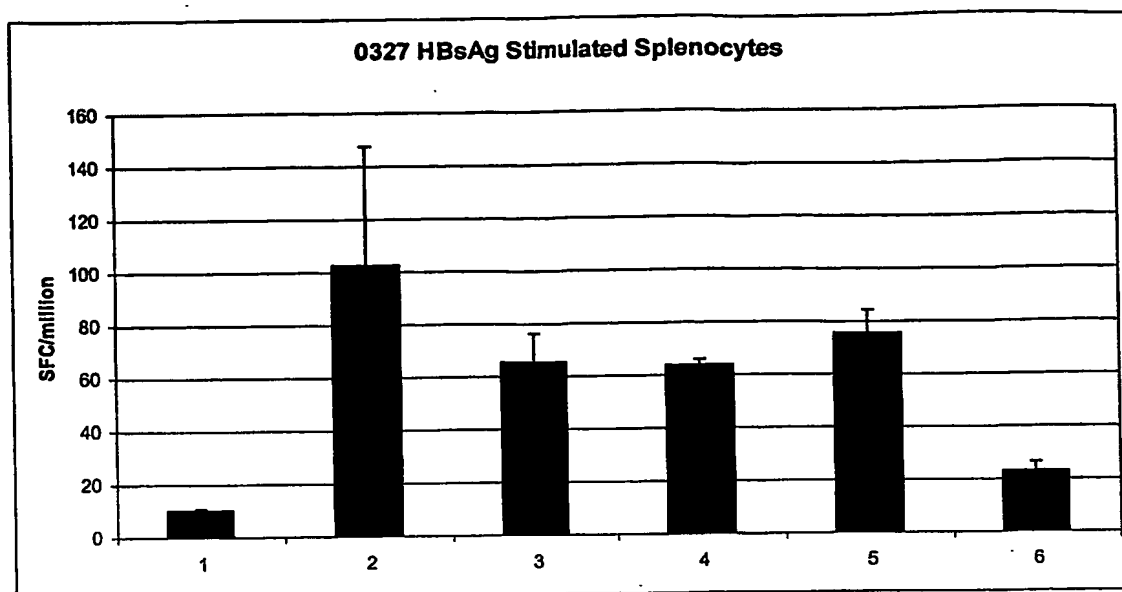


Figure 51

1. [Adeno.LacZ + Ag] id x 2 2. [ALVAC+ Ag] id x 2
3. [FP.LacZ + Ag] id x 2 4. [MVA.LacZ + Ag] id x 2
5. [NYVAC + Ag] id x 2 6. 2 x Ag id

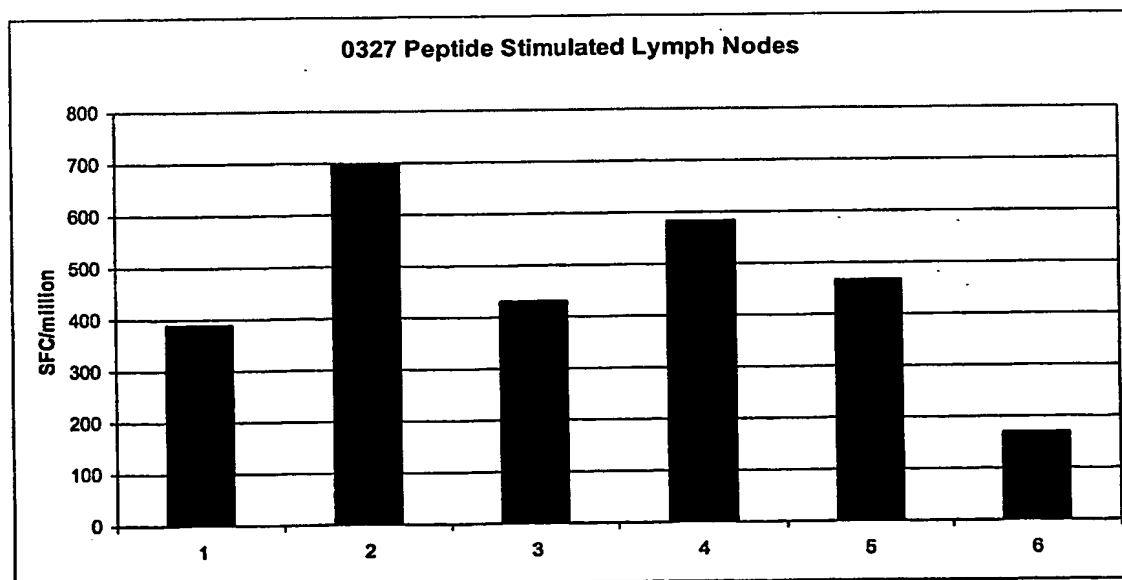


Figure 52

1. [Adeno.LacZ + Ag] id x 2 2. [ALVAC+ Ag] id x 2
3. [FP.LacZ + Ag] id x 2 4. [MVA.LacZ + Ag] id x 2
5. [NYVAC + Ag] id x 2 6. 2 x Ag id

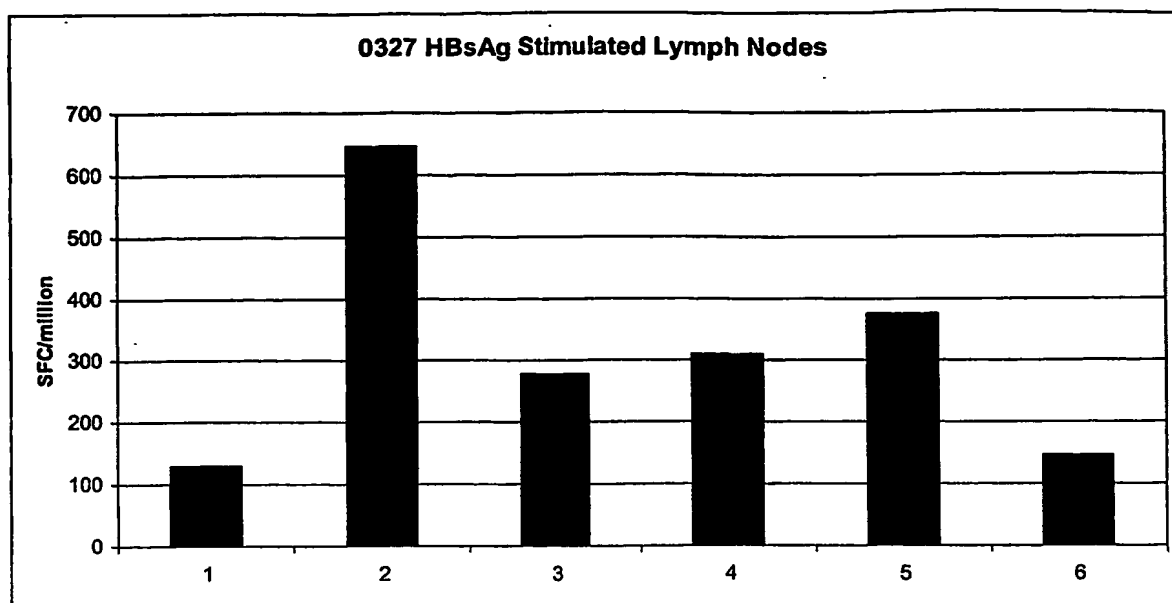


Figure 53

- | | |
|-----------------------------|---------------------------|
| 1. [Adeno.LacZ + Ag] id x 2 | 2. [ALVAC+ Ag] id x 2 |
| 3. [FP.LacZ + Ag] id x 2 | 4. [MVA.LacZ + Ag] id x 2 |
| 5. [NYVAC + Ag] id x 2 | 6. 2 x Ag id |

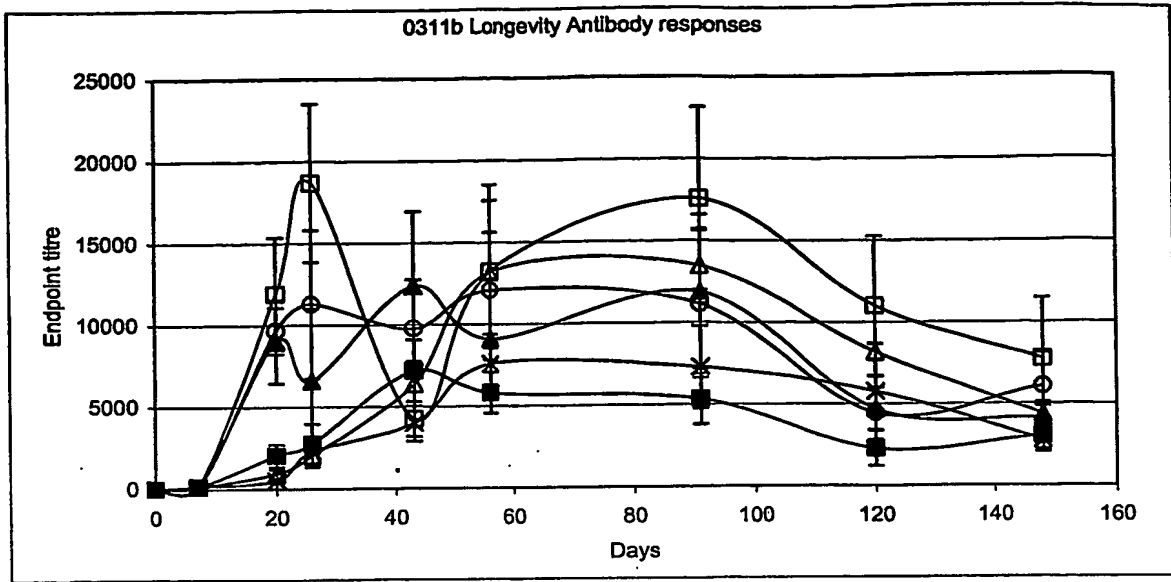


Figure 54

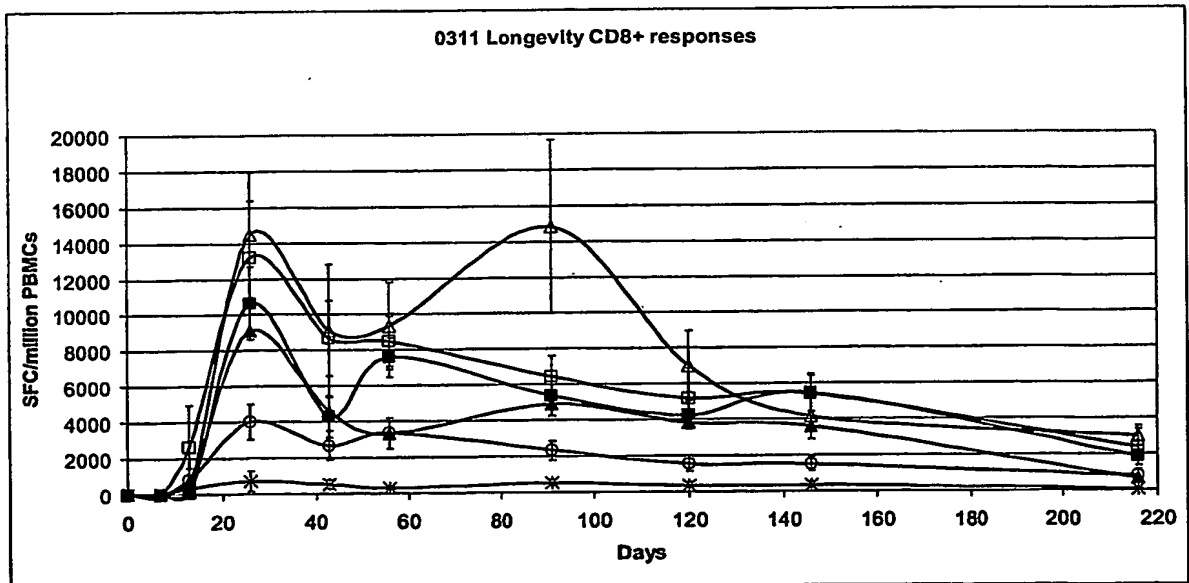
 Δ DNAImEngsc/[MVA.HBs+Ag]id \blacktriangle [DNA+Ag]id/[MVA.HBs+Ag]id \square DNA-im[FP+Ag]id/[MVA.HBs+Ag]id \blacksquare DNAImAgid/[MVA.HBs+Ag]id \circ [MVA.HBs+Ag]id/[MVA.HBs+Ag]id $*$ Engsc/Engsc

Figure 55

 Δ DNAImEngsc/[MVA.HBs+Ag]id \blacktriangle [DNA+Ag]id/[MVA.HBs+Ag]id \square DNA-im[FP+Ag]id/[MVA.HBs+Ag]id \blacksquare DNAImAgid/[MVA.HBs+Ag]id \circ [MVA.HBs+Ag]id/[MVA.HBs+Ag]id $*$ Engsc/Engsc

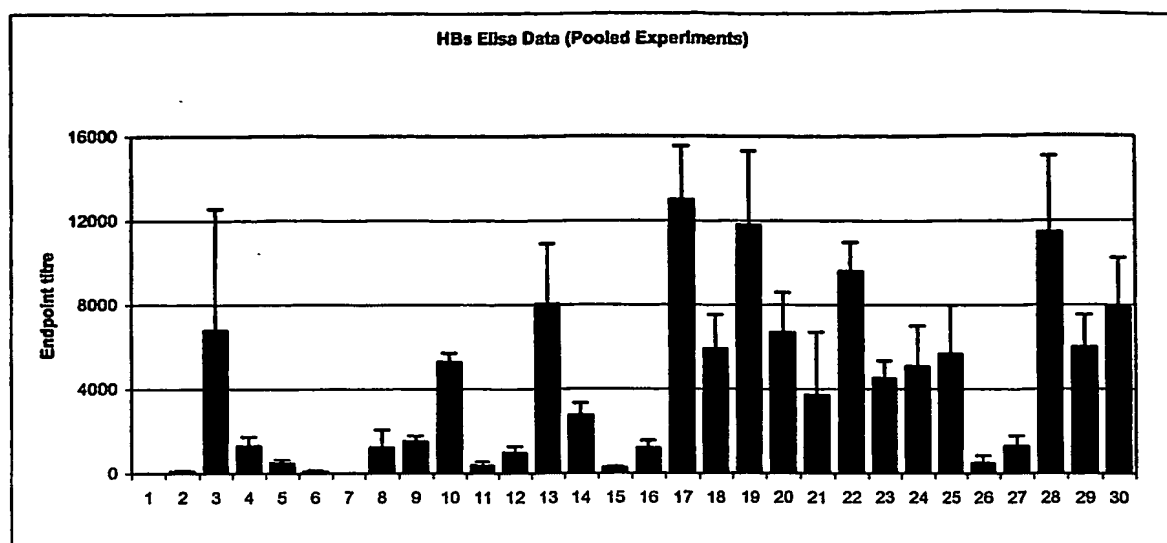


Figure 56

- | | |
|---|--|
| 1. DNA/MVA <i>iv</i> | 2. NIL/Eng <i>sc</i> |
| 3. DNA/[MVA+Eng] <i>sc</i> | 4. DNA/Mva <i>iv</i> Eng <i>sc</i> |
| 5. DNA/Eng <i>sc</i> | 6. DNA/(MVA+Al) <i>sc</i> |
| 7. DNA/MVA <i>id</i> | 8. DNA <i>im</i> Eng <i>sc</i> / [MVA+Eng] <i>sc</i> |
| 9. DNA <i>im</i> Eng <i>sc</i> / MVA <i>id</i> Eng <i>sc</i> <i>n</i> =15 | 10. DNA <i>im</i> Eng <i>sc</i> / [MVA.Lac+Eng] <i>sc</i> |
| 11. 2 x Ag <i>sc</i> | 12. 2 x Ag <i>id</i> |
| 13. 2 x [MVA.Lac+Ag] <i>id</i> | 14. 2 x Eng <i>sc</i> <i>n</i> =12 |
| 15. 2 x MVA.Lac <i>id</i> +Eng <i>sc</i> | 16. 2 x [MVA.LacZ+Eng-B] <i>s.c.</i> |
| 17. 2 x [MVA+Ag] <i>id</i> <i>n</i> =8 | 18. [DNA+Ag] <i>id</i> / [MVA+Ag] <i>id</i> |
| 19. DNA <i>im</i> [FP9.Lac+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 20. DNA <i>im</i> Ag <i>id</i> / [MVA+Ag] <i>id</i> |
| 21. [MVA.Lac+Ag] <i>id</i> / [FP.Lac+Ag] <i>id</i> | 22. [FP9.Lac+Ag] <i>id</i> / [MVA+Ag] <i>id</i> |
| 23. [AD.CSP+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 24. DNA <i>im</i> [AD.CSP+Ag] <i>id</i> / [MVA+Ag] <i>id</i> |
| 25. [MVA.Lac+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 26. DNA <i>im</i> Eng <i>sc</i> / MVA <i>sc</i> |
| 27. [Adeno.LacZ + Ag] <i>id</i> x 2 | 28. [ALVAC+ Ag] <i>id</i> x 2 |
| 29. [FP.LacZ + Ag] <i>id</i> x 2 | 30. [NYVAC + Ag] <i>id</i> x 2 |

49/56

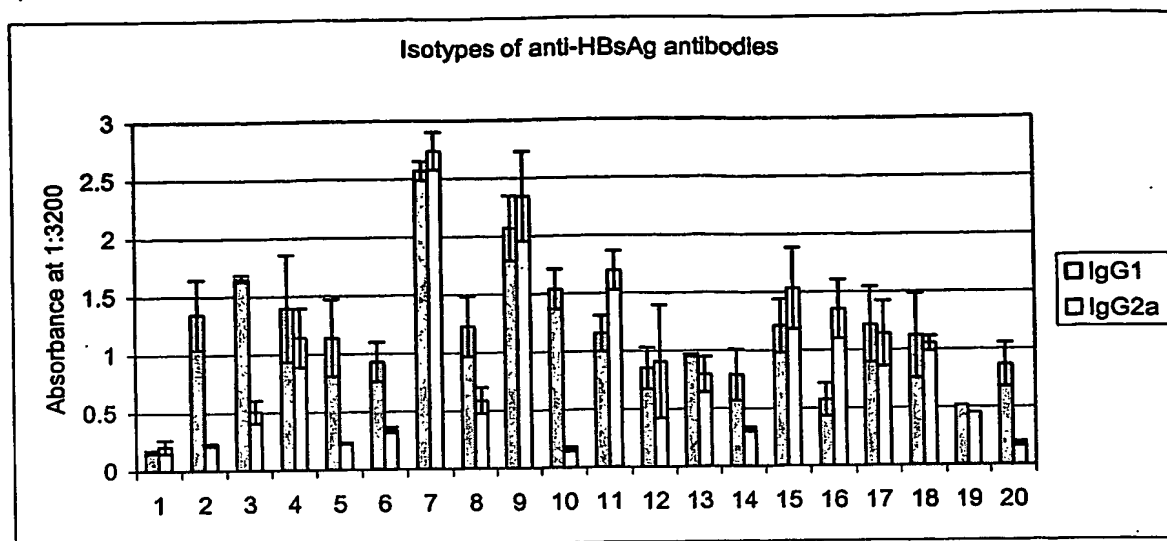


Figure 57

- | | |
|---|--|
| 1. DNA/MVA <i>id</i> | 2. 2.DNAim Engsc / MVAid Engsc |
| 3. [DNA+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 4. DNAim Agid / [MVA+Ag] <i>id</i> |
| 5. DNAim Engsc / MVAid Engsc | 6. [DNA+Ag] <i>id</i> / [MVA+Ag] <i>id</i> |
| 7. DNAim [FP9.Lac+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 8. DNAim Ag <i>id</i> / [MVA+Ag] <i>id</i> |
| 9. 2 x [MVA+Ag] <i>id</i> | 10. 2 x Eng sc |
| 11. [FP9.Lac+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 12. [AD.CSP+Ag] <i>id</i> / [MVA+Ag] <i>id</i> |
| 13. DNA im [AD.CSP+Ag] <i>id</i> / [MVA+Ag] <i>id</i> | 14. [Adeno.LacZ + Ag] <i>id</i> x 2 |
| 15. [ALVAC+ Ag] <i>id</i> x 2 | 16. [FP.LacZ + Ag] <i>id</i> x 2 |
| 17. [MVA.LacZ + Ag] <i>id</i> x 2 | 18. [NYVAC.LacZ + Ag] <i>id</i> x 2 |
| 19. 2 x Ag sc | 20. 2 x Ag <i>id</i> |

50/56

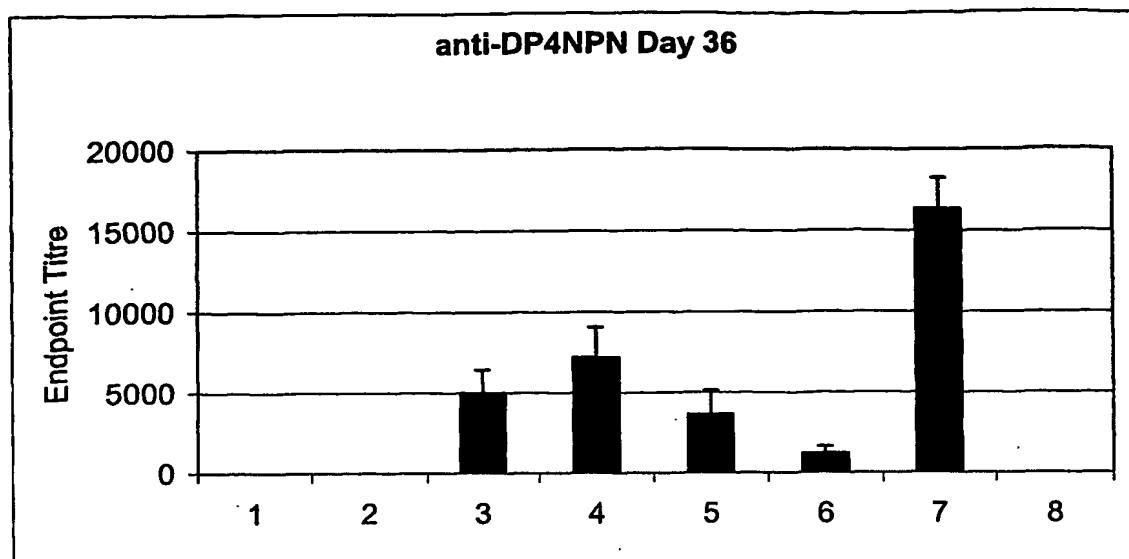


Figure 58

- | | |
|------------------------------------|---------------------------------------|
| 1. FP/MVA i.d. | 2. DNA i.m./MVA i.d. |
| 3. AP i.p. x 2 (10ug) | 4. AP i.d. x 2 (5ug) |
| 5. DNA i.m. + AP i.p./ MVA+AP i.p. | 6. FP i.d. + AP i.p./MVA i.d. Ap i.p. |
| 7. FP+AP i.d./MVA+AP i.d. | 8. PBS x 2 |

51/56

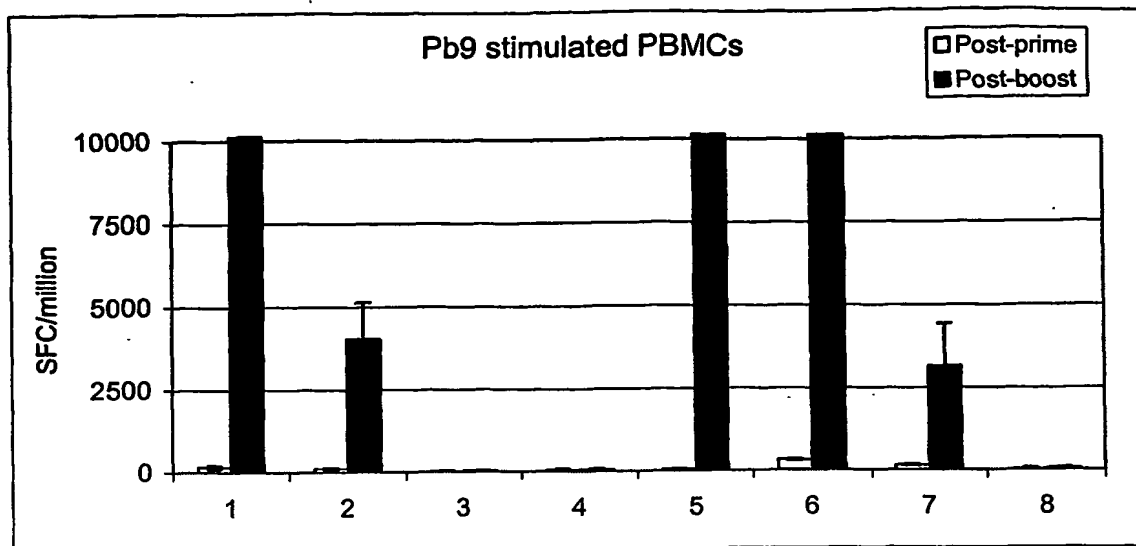


Figure 59

- | | |
|------------------------------------|---------------------------------------|
| 1. FP/MVA i.d. | 2. DNA i.m./MVA i.d. |
| 3. AP i.p. x 2 (10ug) | 4. AP i.d. x 2 (5ug) |
| 5. DNA i.m. + AP i.p./ MVA+AP i.p. | 6. FP i.d. + AP i.p./MVA i.d. Ap i.p. |
| 7. FP+AP i.d./MVA+AP i.d. | 8. PBS x 2 |

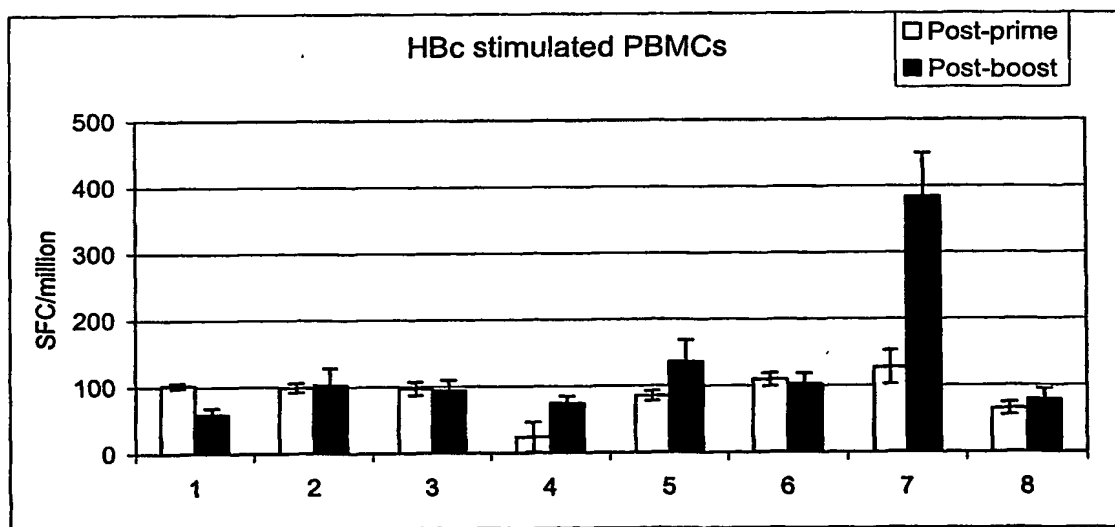


Figure 60

- | | |
|------------------------------------|---------------------------------------|
| 1. FP/MVA i.d. | 2. DNA i.m./MVA i.d. |
| 3. AP i.p. x 2 (10ug) | 4. AP i.d. x 2 (5ug) |
| 5. DNA i.m. + AP i.p./ MVA+AP i.p. | 6. FP i.d. + AP i.p./MVA i.d. Ap i.p. |
| 7. FP+AP i.d./MVA+AP i.d. | 8. PBS x 2 |

52/56

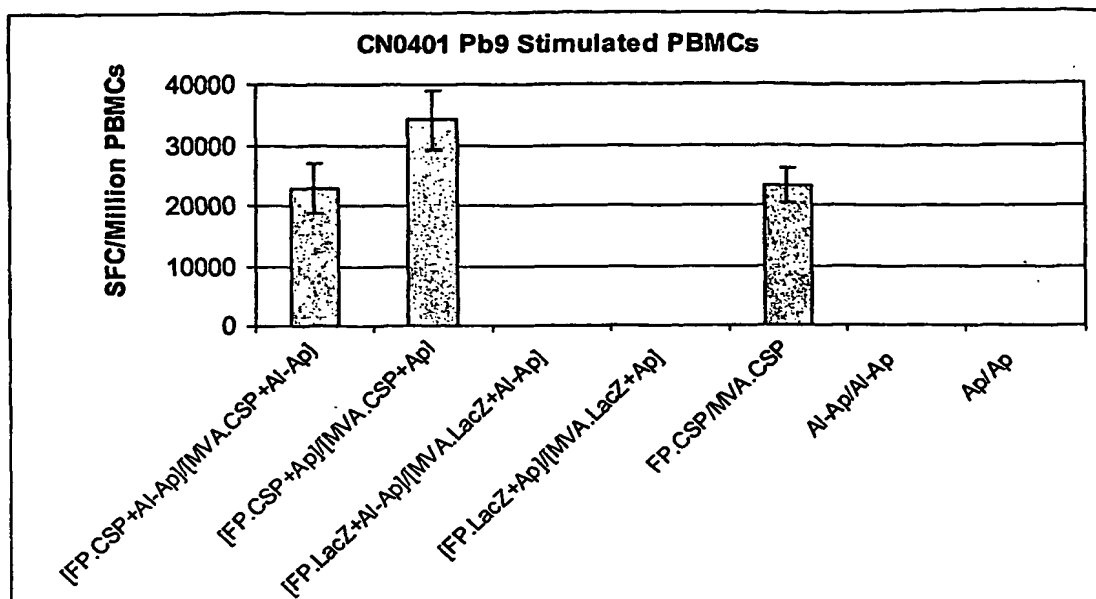


Figure 61

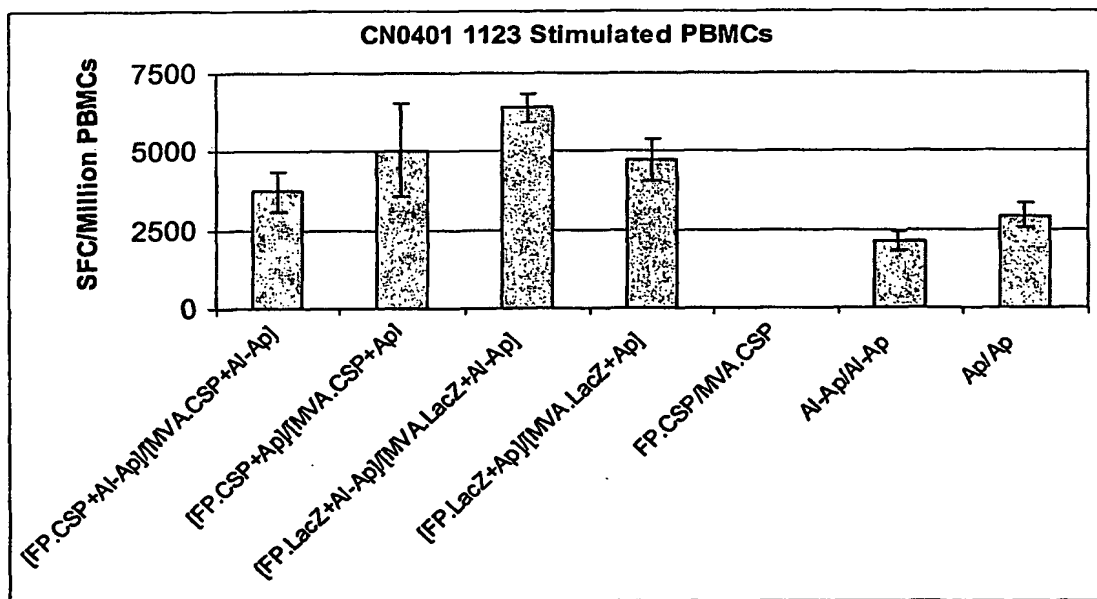


Figure 62

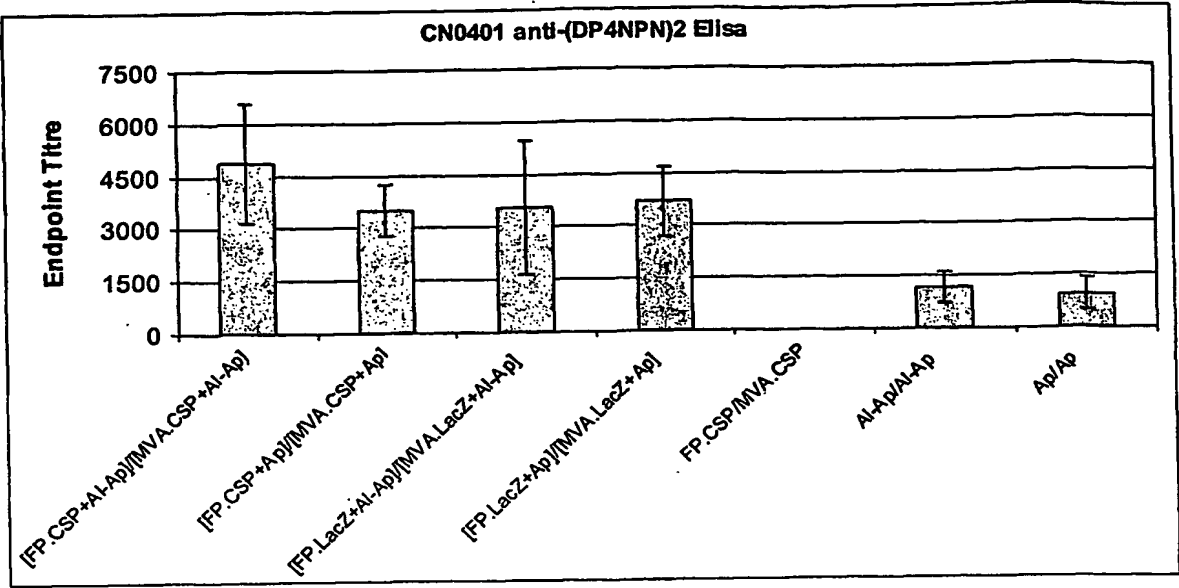


Figure 63

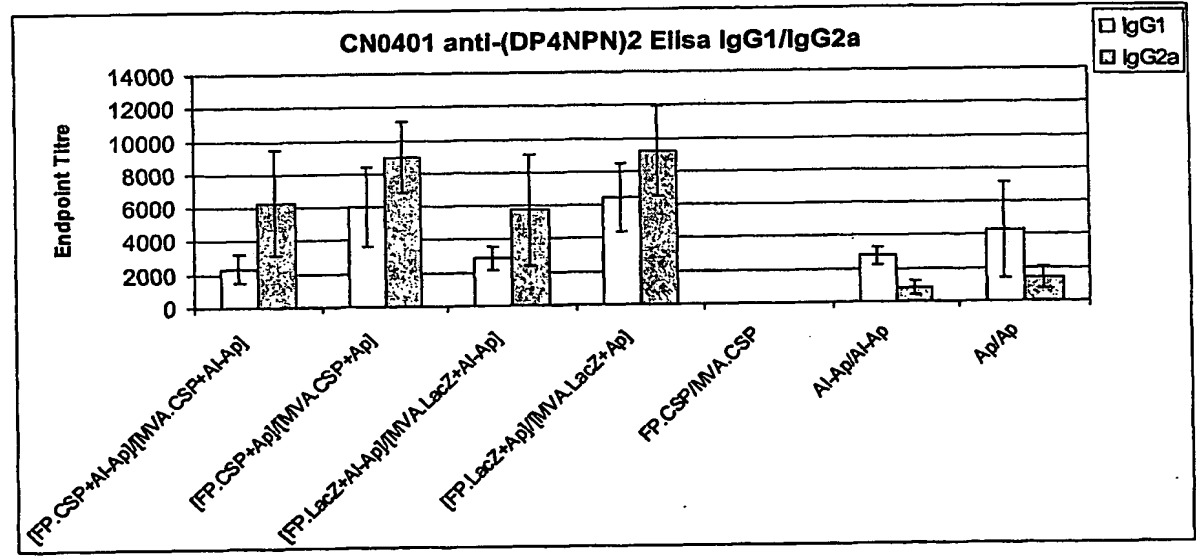


Figure 64

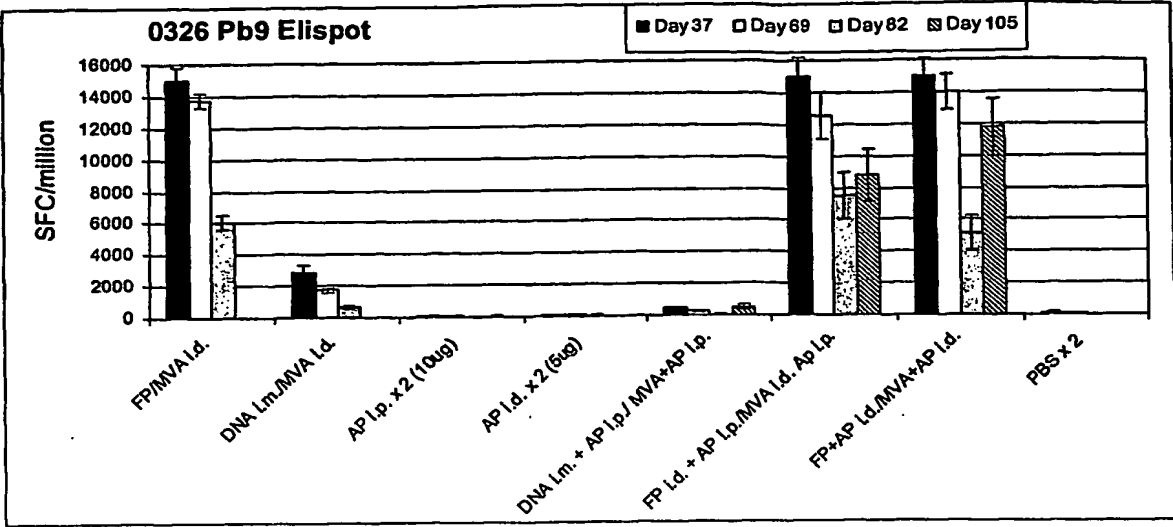


Figure 65

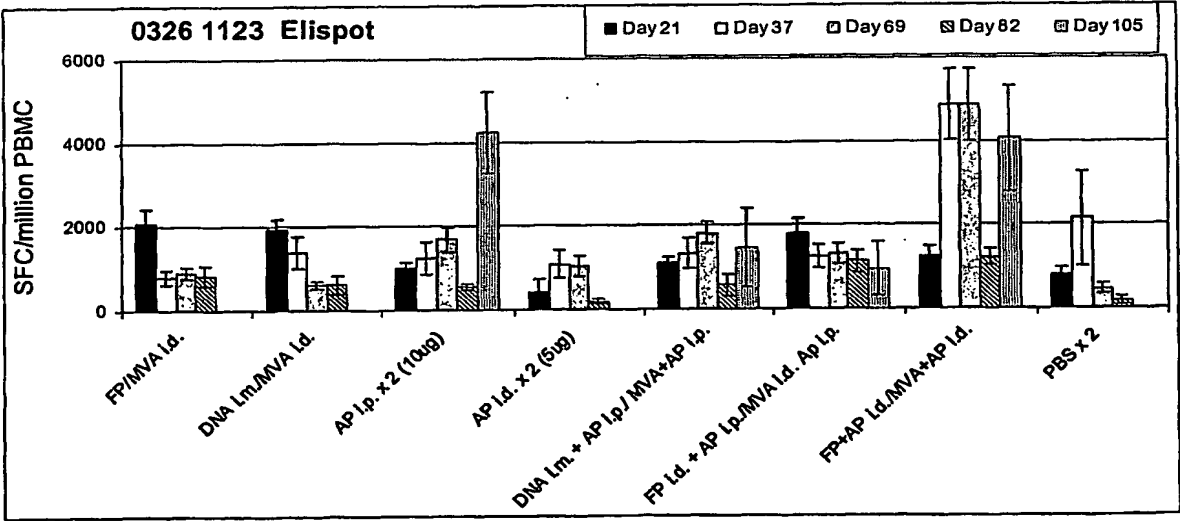


Figure 66

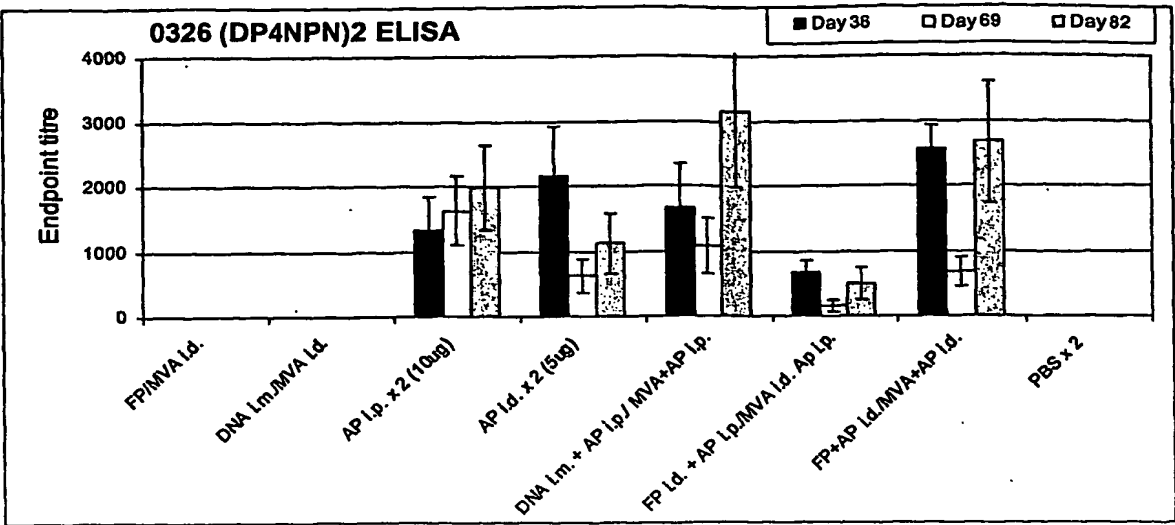


Figure 67

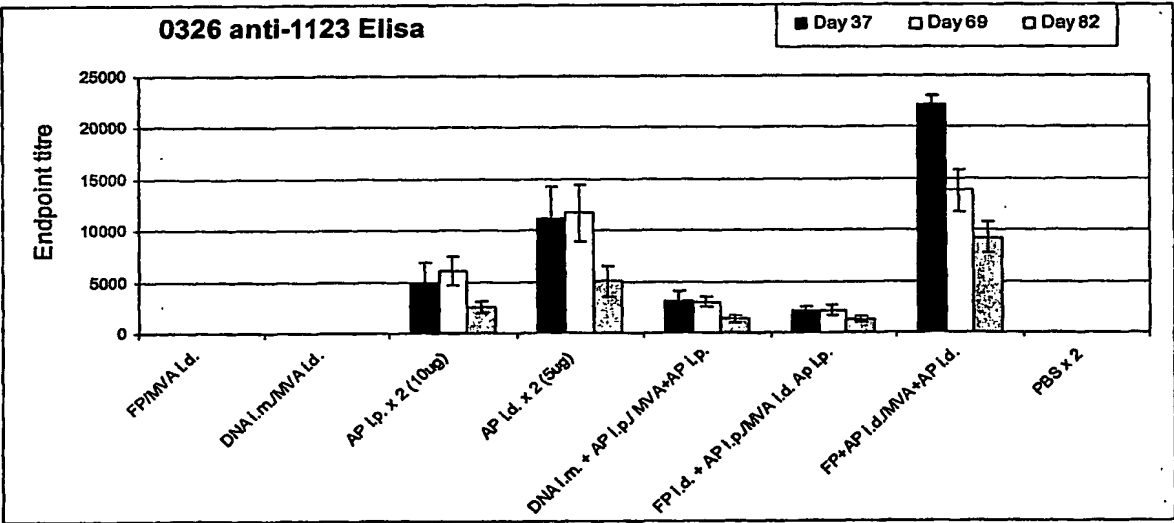


Figure 68

56/56

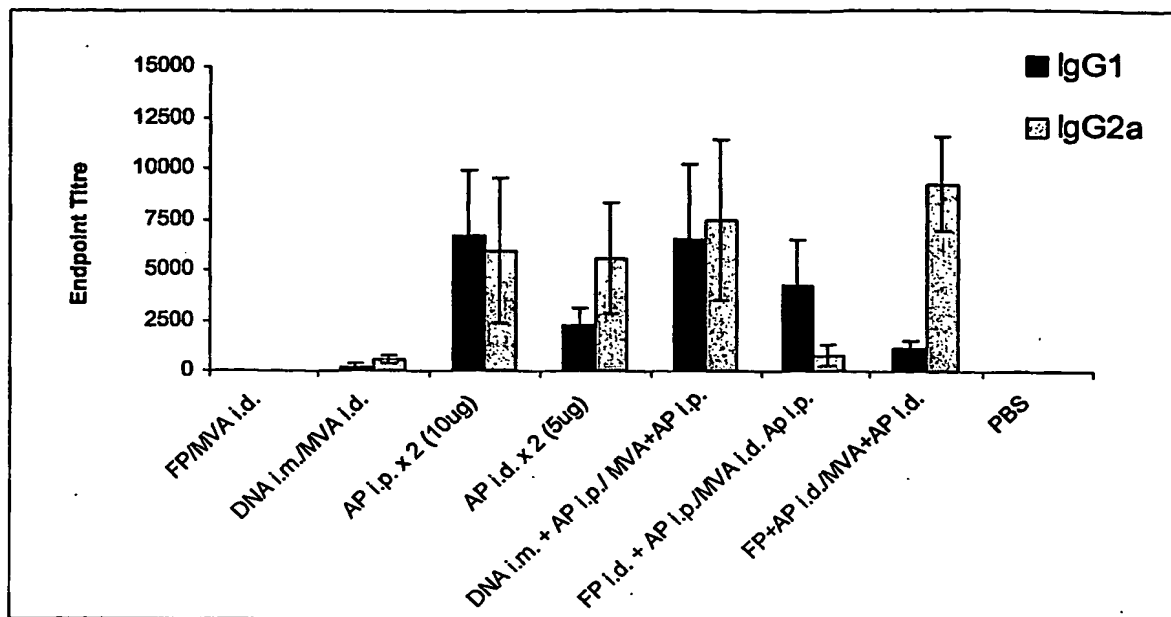


Figure 69